

INSTITUTE *of* STATISTICS Oxford

Bulletin Vol. 15

August, 1953

Nos 8

RATES AND EARNINGS IN LONDON TRANSPORT

We should like to thank the London Transport Executive for having very kindly provided, and checked, the material on which this article is based. The Executive believe the material to be accurate, although they are unable to guarantee this. Naturally, they bear no responsibility for the way in which we have used the material.

I. INTRODUCTION

Since 1948 the London Transport Executive has been responsible for providing passenger transport in the London area. It took over from the London Passenger Transport Board, which had been set up by the London Passenger Transport Act of 1933. This Act provided for the unification under the Board of all passenger services except the Main Line suburban railway services, for which the Act established a pooling scheme between the Board and the Main Line companies; and thus for the first time a full co-ordination of services and of new works became possible. Before 1933 there had been many authorities responsible for London transport. However, several of the most important were already under the common central control of the Underground Group of Companies: this included all the underground railway companies except the Metropolitan, the three private tramway companies, and the London General Omnibus Company—much the biggest of the 130-odd bus (and coach) companies. There was, in addition, extensive joint negotiating machinery: all the tramways, including the fourteen municipal undertakings, participated in the Metropolitan District Joint Industrial Council for the Tramway Industry; the three biggest bus companies—the L.G.O.C., Thomas Tilling, and Tilling and British Automobile Traction—negotiated in common; and for most matters the agreements of the Main Line railways applied to the London railway companies.

In 1951 the L.T.E. had just under 100,000 employees: of these, we are concerned with about half. Our figures do not cover the maintenance, clerical, supervisory, or administrative staffs, but relate to the greater part of the operating staff: on the railways, to motormen (1,740), guards (1,851), and stationmen and stationwomen¹ (1,397); on the Central buses, to drivers (14,840) and conductors (14,761); and, on the trams and trolleybuses, to drivers (5,225) and conductors (5,334). (Figures in brackets are average numbers receiving pay in 1951.)² For these grades we have statistics of rates and earnings—for railways between 1923 and 1951, for Central buses between 1920 and 1951, and for trams and trolleybuses between 1935 and 1951. In addition we give figures of rates, though not of earnings, for Country buses since 1933.

¹ This grade was previously called porters.

² The actual number of employees in each grade is normally somewhat larger, since in any week some workers will be away from work because of sickness, etc.

II. WAGE RATES

London Transport is a single large undertaking straddling two distinct branches of an industry. The workers whose wage rates we study are therefore covered by different agreements: negotiations for the railway workers have always been separate from those for the road workers. Moreover, the agreements reached have naturally tended, in large measure, to conform with those covering the same grades in similar branches of the transport industry over the rest of the country.

On the railways, up to 1937, the standard rates of L.T. workers were usually identical with those on the Main Lines; and, although from 1938 the porters' rates diverged as a result of a special L.T. agreement, the war increases granted still applied to both. Since nationalisation, separate agreements have been signed; they have however been similar in content, since the L.T. agreements have tended to follow the general lines of the Railway Executive's agreements.

On the roads, however, the practice has been less uniform. L.T. agreements have always been—and remain—separate from those reached elsewhere. At the present time there are three sets of agreements in road passenger transport—one for London Transport, one for municipal bus and tram services,¹ and one for provincial company-owned bus and coach undertakings.² Naturally, these agreements tend to be related to each other, partly because the Union concerned has tended to present similar demands. Before the war the situation was more complex. Tramwaymen and trolleybusmen were covered by national negotiating machinery: bus³ and coach workers were not.

Thus the rates we consider are by no means wholly the product of conditions in London Transport. Railway wage rates have, in fact, been largely outside the control of L.T.: road wage rates, on the other hand, have been much less determined by conditions elsewhere, although recently they have tended to conform more closely. Any examination of L.T. rates is therefore bound to be not merely a study of rates in one particular undertaking but also, in part, of the two sets of rates in the passenger transport industry as a whole.

(a) *Railways*

In Table I we show the maximum weekly wage rates at six specimen dates, together with details of every change. These maxima are reached after certain qualifying periods of service, which have varied from five years for motormen and guards before the war to nil for stationmen since 1947. (Details of these periods, and of the amounts by which starting rates have fallen short of maximum rates, are given in the Appendix.) For women, who since 1940 have been employed in place of some stationmen, the qualifying period is six months longer, although their maximum rate is the same as the men's. Before 1950 their maximum rate was 4s. less, and they took three months longer to reach it than the men took to reach theirs.

Before the war, railway wages were covered by a cost-of-living agreement

¹ Agreements made by the National Joint Industrial Council for the Road Passenger Transport Industry (Tramways, Trolleybuses, and Motor Omnibuses).

² Agreements made by the National Council for the Omnibus Industry.

³ Municipal busmen's rates tended to follow those settled for tramwaymen.

TABLE I. L.T. Railway Maximum Weekly Wage Rates¹ (Men)

	motormen ²	guards ²	stationmen/porters ² Grade I	Grade II
<i>Position at December 1920</i>	106/- (106/-)	82/6 (82/6)	71/6 (71/6)	69/- (69/-)
<i>Change at:</i> 1921 Jan.	+ 1/-	+ 1/-	+ 1/-	+ 1/-
Apr.	- 4/-	- 4/-	- 4/-	- 4/-
July	- 5/-	- 5/-	- 5/-	- 5/-
1922 Jan.	- 4/-	- 4/-	- 4/-	- 4/-
Apr.	- 4/-	- 4/-	- 4/-	- 4/-
July		- 1/6	- 4/-	- 4/-
Oct.	+ 3/- ⁴	+ 3/- ⁴		
1923 July			- 2/6	- 2/-
1924 Jan.			+ 1/-	+ 1/-
July			- 1/-	- 1/-
1925 Jan.			+ 2/-	+ 2/-
July			- 1/-	- 1/-
<i>Position at December 1925</i>	93/- (93/-)	68/- (68/-)	50/- (50/-)	48/- (48/-)
<i>Change at:</i> 1926 July			- 1/-	- 1/-
1927 Jan.			+ 1/-	+ 1/-
July			- 2/-	- 2/-
(1927-33) ⁵		+ 4/10 ⁵		
1929 July			- 1/-	- 1/-
1930 Jan.			+ 1/-	+ 1/-
July			- 2/-	
1932 Sept.	- 3/8 ⁶	- 2/8 ⁶	grades merged	
<i>Position at December 1933</i>	89/4⁶ (89/4 ⁶)	70/2⁶ (65/7 ⁶)	46/- (44/8 ⁶)	(41/-⁶)
<i>Change at:</i> 1934 Oct.	+ /8 ⁶	+ /5 ⁶		
1935 Jan.	+ /8 ⁶	+ /5 ⁶		
Apr.	+ 1/2 ⁶	+ /11 ⁶		
June	+ 1/2 ⁶	+ /11 ⁶		
1938 Jan.			+ 4/-	
1939 Jan.			+ 2/-	
<i>Position at August 1939</i>	93/- (93/-)	72/10 (68/-)	52/- (46/-)	(45/-)
<i>Change at:</i> 1940 Jan.	+ 4/-	+ 4/-	+ 4/-	
June	+ 3/-	+ 3/-	+ 3/-	
1941 Jan.	+ 4/-	+ 4/-	+ 4/-	
1942 Mar.			+ 4/6	
June	+ 5/-	+ 5/-	+ 5/-	
1943 Apr.	+ 4/6	+ 4/6	+ 4/6	
1944 Apr.	+ 5/-	+ 5/-	+ 5/-	
1945 July	+ 11/-	+ 10/-	+ 7/-	
<i>Position at December 1945</i>	129/6 (129/6)	108/4 (103/6)	89/- (91/6)	(87/-)
<i>Change at:</i> 1947 June	+ 7/6	+ 7/6	+ 7/6	
1948 Feb.	+ 3/- ⁷	+ 2/2 ⁷	+ /6	
1950 Sept.			+ 3/-	
1951 Jan.	+ 11/6	+ 9/-	+ 7/6	
Sept.	+ 13/-	+ 11/-	+ 8/6	
<i>Position at December 1951</i>	164/6 (164/6)	138/- (135/-)	116/- (118/6 ⁸)	(113/6)

[Notes at foot of next page]

under which rates were adjusted if necessary every three or six months. The adjustments were flat-rate changes, but took effect only if the cost-of-living index was above specified levels which were different for the different grades. Until these levels were reached, no increases were granted; similarly, no cuts were imposed once wages were down to base rates. As the critical levels were higher for motormen and guards, the effect of the agreement was that cuts fell on the lowest-paid at times when the others were unaffected. Of course, during and immediately after the war the lowest-paid had correspondingly benefited. As a result, the skill differential widened very substantially (Table II) back towards its pre-war level, as the cost of living fell off sharply from its post-war peak. Guards and motormen reached their base rates in 1922; stationmen not until 1930. In that year Grade I porters touched bottom; Grade II, which still had further to drop, did not, however, do so, as the two grades were merged.¹

There were two exceptions to this general decrease in rates. Both guards and motormen were granted a 3s. London rent allowance in 1922; and, as airworked doors were introduced by stages between 1927 and 1933, gatemen gradually became redundant and guards were awarded a 4s. 10d. compensation bonus for increased responsibility. Neither of these was formally incorporated into the standard rate until 1948; we have however included them from the date of their introduction.

With increasing road competition the Main Line railways could not maintain even the base rates, and a new method of reducing wages—by percentage cuts in earnings—was adopted in 1928. It was not however then applied to London Transport railways. The cuts were restored in 1930, but the slump caused their re-imposition in 1931 when, after arbitration, they were also applied to the Metropolitan Railway. In 1932 a similar type of

¹ However, a qualifying period was introduced for L.T. stationmen, and the starting rate was that of Grade II porters on the Main Lines.

Notes to Table I on previous page]

Note.—Up to June 1933, the rates are those paid by the Underground group of companies only (*i.e.* not the Metropolitan). From then the rates apply to all L.T. railways. The rates in brackets are the London rates paid by the Main Line companies (or the Railway Executive).

¹ Including war bonuses and cost-of-living bonuses, even when these did not form part of the basic rates.

² Figures for motormen include the 3/- London rent allowance; figures for guards include this and the 4/10 airworked door allowance, although neither was incorporated into the standard rate until 1948. The motormen's rates are those for day motormen; since the war a new grade of night motormen has been introduced who are more highly paid. Guards qualified as motormen receive a special allowance of 2/6 per week, which has not been included; all guards are now so qualified.

³ After February 1926, new entrants in both grades received only the basic rates (*i.e.* without cost-of-living bonus). Thus new entrants, unlike other porters, received 46/- or 42/- until 1930; from then all porters received the same maximum rate, the cost-of-living bonus for Grade I having fallen to zero.

⁴ London rent allowance.

⁵ Airworked door allowance (see above).

⁶ Adjustments to allow for the percentage cuts in earnings (see above).

⁷ Figures lower than nominal increases because of the incorporation of the rent and air-worked door allowances.

⁸ Rate for Leading Porter Grade (into which Grade I was merged during 1951).

cut was applied to the other London railways. Total earnings were to be cut by $2\frac{1}{2}$ per cent, and the excess of earnings above 40s. was to be cut by a further $2\frac{1}{2}$ per cent. No cuts were to be imposed on earnings under 50s., and those above this level were not to be cut below it. (On the Main Lines there were other—though less generous—provisions to protect the lowest-paid.) In Table I these cuts have been applied to the rates, although rates remained nominally unchanged. Since the stationmen's rate was below 50s., we have not altered their rate; but this does not mean that stationmen's earnings were not cut considerably, as most of them were earning well above their rate (Table VI, p. 277). As the slump ended, these cuts were restored by stages: they lasted rather longer on the Main Lines.

The rates then remained at their base levels until 1938, when a special London agreement was signed. This raised the rates of the lower-paid by two stages: stationmen got 6s. extra a week, and the starting rates of motor-men and guards were also raised (see Appendix). Consequently the skill differential narrowed, though it was still much wider than in 1920 (Table II).

During the war, six war bonuses were granted. As was common in other industries, these were flat-rate increases. In addition, in 1942, a special increase was granted to porters and stationmen on all railways. In 1945 flat-rate advances were abandoned in favour of graded increases: it was apparently considered that levelling-up had gone far enough.

1947 brought a return to the flat-rate advance, but in somewhat peculiar circumstances. The Court of Inquiry which recommended this increase for the Main Line Railways did so only as 'an interim arrangement', since it felt that nationalisation would mean that relative wages and conditions would soon be 'a matter requiring careful consideration'.¹ At the same time it recommended a 44-hour week in place of the previous 48 hours. London Transport, although not a party to the Inquiry, applied the Court's findings to its own staff; together with the railway unions it began a detailed study of staff grading, with a view to its simplification and the removal of anomalies in the wage-scales. This study resulted in the 1948 increases, which had the effect of turning the 1947 flat-rate advance into a percentage advance of 8 to 9 per cent. Guards obtained a titular increase of $17\frac{1}{2}$ per cent, but nearly half of this was accounted for by the formal incorporation both of the compensation bonus and of the London rent allowance.

The policy of wage restraint held rates stable until 1950, when, as had been envisaged in the Government statement,² the lowest-paid received a special advance. In 1951 there was a return to near-percentage increases, one of $7\frac{1}{2}$ to 8, and the other of 8 to $8\frac{1}{2}$ per cent.

Although L.T. rates have differed from Main Line rates, they have not differed substantially. For both during and after the war wage claims, similar in content and in timing, have been presented to both undertakings

¹ *Report of a Court of Inquiry into Applications by the Trade Unions Representing the Employees of the Railway Companies for Improvements in Wages and Reductions in Weekly Hours of Work.* (Cmd. 7161, 1947, p. 28).

² *Statement on Personal Incomes, Costs, and Prices* (Cmd. 7321, 1948).

alike—with similar results. In fact, both L.T. stationmen and guards have lost a little ground since 1940; but this loss has been very slight.

In Table II we show by how much, and by what methods, skill differentials have changed. Firstly, the absolute differences in terms of money are shown, as these have some tendency to perpetuate themselves; secondly, following our usual practice,¹ we show the two lower rates as percentages of the motormen's.

TABLE II
Skill Differentials (L.T. Railways)

	Money difference between lower rate and motormen's rate			Lower rate as percentage of motormen's rate		
	guards	stationmen		guards	stationmen	
	Grade I Grade II			Grade I Grade II		
<i>Position at December 1920</i>	—23/6	—34/6	—37/-	77.8	67.5	65.1
<i>Net changes 1921-31 from :</i>						
common decreases (cost of living)				—3.9	—5.8	—6.2
extra decreases (cost of living)...	—1/6	—9/6	—7/-	—1.7	—10.4	—7.7
special increase (guards and motormen)		—3/-	—3/-	+0.9	—1.8	—1.7
special increase (guards) ...	+4/10			+5.2		
<i>Position at December 1931</i>	—20/2	—47/-		78.3	49.5	
<i>Net changes 1932-39 from :</i>						
special increases (stationmen)		+ 6/-			+6.4	
<i>Position at August 1939</i>	—20/2	—41/-		78.3	55.9	
<i>Net changes 1939-45 from :</i>						
common increases (war bonuses)				+4.7	+9.0	
special increase (stationmen) ...		+4/6			+4.3	
graded increase	—1/-	—4/-		+0.7	—0.5	
<i>Position at December 1945</i>	—21/2	—40/6		83.7	68.7	
<i>Net changes 1946-51 from</i>						
graded increases*	—5/4	—11/-		+0.2	—0.3	
special increase (stationmen) ...		+3/-			+2.1	
<i>Position at December 1951</i>	—26/6	—48/6		83.9	70.5	

Note.—All figures are derived from Table I (*q.v.*). In this table, 'special' increases mean those confined to particular grades. 'Graded' increases are those by which all grades receive approximately the same proportionate additions to rates. 'Common' increases or decreases are the common part of changes other than 'graded' (including of course the whole of any flat-rate change). 'Extra' increases or decreases are the residuals after the common part of each change has been extracted.

In calculating the change in the percentage level of the lower rate, each wage-change is separated into its components and the effect of these on the level is calculated as at the time when the wage change occurred. The effects due to the various components are then summed over each period. (In the case of single wage-changes split into two components, the 'common' part is assumed to occur before the 'extra' part; altering this order would, however, affect the figures only slightly).

* Including the 1947 and 1948 increases considered as one increase (see p. 265).

¹ See BULLETIN articles: April 1951 (skill differentials); June and July 1951 (engineering); November-December 1951 (shipbuilding).

In both cases we again show changes, but this time summarised by type of wage change.

This table brings out very clearly the drastic widening of the differential for stationmen during the 'twenties.¹ The cost-of-living adjustments brought the differential back to near its pre-war level—a return which did not occur in other industries. Since 1937, differentials have narrowed greatly. Much of this narrowing has of course been due to the common practice of granting flat-rate war bonuses—for guards, most of it. For stationmen, the greater part of the narrowing has arisen from special increases confined to that grade; although, even for them, getting on for half has come from war bonuses. Thus for guards the differential narrowed only during the war; but for stationmen, before, during, and after.

(b) Roads

In Table III we show the maximum weekly wage rates for the road services at the same six specimen dates, again with details of every change. (Before 1933, the Central bus rates are those paid by the L.G.O.C., and the tram rates those paid by the L.C.C. Other operators paid the same or lower rates.) These maxima also are reached after qualifying periods of service; but the periods are shorter than on the railways, always having been 2 years or less. (Details of these periods, with starting rates, are given in the Appendix.) For women, who have been employed as conductors since 1940, the qualifying period was 6 months longer until 1950; their maxima have always been the same as men's, and now their rates are the same throughout. On the buses, drivers have always received more than conductors; but on the trams and trolleybuses their rates were identical until 1950.

In the early 'twenties both tramwaymen's and Central busmen's rates included cost-of-living or war bonuses, and wage changes took the form of reductions or increases in these bonuses. But whereas the changes for tramwaymen, under the terms of a national agreement, followed automatically upon changes in the cost-of-living, those for Central busmen had each to be negotiated separately. This prevented the cuts falling so heavily on Central busmen, conductors being particularly protected as the cuts were imposed differentially in their favour—in sharp contrast to the railways. In 1924, however, the tramwaymen recovered nearly all their relative position, as they received a special London advance of 6s. At the end of 1924 their rates were 87 per cent of the average of drivers' and conductors' rates on Central buses, a fall of only 1 per cent from the end-1920 ratio; and this relativity was maintained until the slump, except for a short period in 1925-26.

In 1932 proposals were made for percentage cuts in busmen's earnings, similar to those imposed on railwaymen. Instead, however, schedules were speeded up; this had been made possible by radical improvements in bus

¹ In earnings, the widening was very much less drastic. For instance, in 1931, when stationmen's rates were 49½ per cent of motormen's, their earnings were 59 per cent of motormen's. The differential in earnings widened considerably in the later 'thirties, but for men always remained appreciably narrower than in rates. For guards, the differential in earnings has always been fractionally the narrower.

TABLE III. *L.T. Road Maximum Weekly Wage Rates*¹

	Central buses		Trams and trolleybuses	
	drivers	con- ductors	drivers	con- ductors
<i>Position at December 1920</i>	100/- ²	87/- ²	82/-	
<i>Change at :</i> 1921 Aug.			-3/-	
Nov.			-2/-	
1922 Feb.			-3/-	
Apr.	-9/-	-4/6		
May			-2/-	
July	-2/-	-1/6		
Oct.			-4/-	
1923 May			-1/-	
July	-2/-	-2/-		
Aug.			-1/-	
Nov.			+1/-	
1924 Jan.	+1/-	+1/-		
Apr.			+6/-	
1925 Jan.	+1/-	+1/-		
<i>Position at December 1925</i>	89/- ²	81/- ²	73/-	
<i>Change at :</i> 1926 May	-1/-	-1/-		
1932 Sept.			-1/-	
1933 Apr.			+1/-	
<i>Position at December 1933</i>	88/- ²	80/- ²	73/-	72/6 60/-
<i>Change at :</i> 1934 Jan.	+1/-	+2/-		
1935 Jan.			+2/-	
Apr.	+1/-	+2/-	+1/-	
Nov.			+2/-	
1936 Jan.				+2/-
Oct.			+2/-	
Nov.				+2/-
1938 Dec.			+2/-	
<i>Position at August 1939</i>	90/-	84/-	82/-	72/6 64/-
<i>Change at :</i> 1939 Dec.			+2/-	
Dec.	+4/-	+4/-		+4/- +4/-
1940 June	+3/-	+3/-		+3/- +3/-
1941 Apr.	+4/-	+4/-		+4/- +4/-
Oct.			+2/6	+2/6
1942 Mar.	+4/-	+4/-	+4/-	+4/-
1943 July	+4/6	+4/6	+4/6	+4/6
1944 May	+5/-	+5/-	+5/-	+5/-
June			+2/6	+3/6
<i>Position at December 1945</i>	114/6	108/6	102/-	94/6
<i>Change at :</i> 1946 Jan.	+7/-	+9/-		
1948 Mar.	+7/6	+7/6	+9/-	+9/6
			+7/6	+8/6
1951 Jan.	+7/-	+7/-	+9/-	+9/6
Aug.	+8/6	+8/6	+8/6	+8/6
<i>Position at December 1951</i>	144/6	140/6	142/6 140/6	135/6 130/6

Note.—Up to June 30th, 1933, the Central bus rates are those paid by the L.G.O.C. ; and the tram rates those paid by the London County Council and the tramway undertakings of the Underground Group of Companies. From then the rates apply to all L.T. road services other than Country coaches.

¹ Including war bonuses or cost-of-living bonuses, even when these were not part of the basic rates.

² Including the Accident Bonuses of 1/6d. for drivers and 6d. for conductors, which were not incorporated into the standard rates until May 1937.

design. Central busmen's rates therefore did not fall in the slump; and as the slump ended they received two increases to compensate them for the earlier speeding-up. Again the conductors did better than the drivers. The tramwaymen, whose schedules could not easily be speeded up, suffered an economy cut in their rate in 1932, but this was very quickly restored. They then—together with the trolleybusmen, who were put on the same rates—received a string of increases to bring their rates up to parity with those of Central bus conductors; this was to be done 'in proportion to the measure of conversion from trams to trolleybuses completed.'¹ Parity of maximum rates was reached late in 1939, although some trams still survived.

In October 1933 the first agreement covering L.T. Country services as a whole was signed. This established the rates shown in the table;² but where the previous rates had been lower, the increases up to the new levels were to be effected gradually by an agreed scale of annual increments. These new rates were themselves far below the Central bus rates; but, apart from the annual increments to sub-standard rates, no further increases were granted to Country bus drivers before the war. The conductors, whose rates were proportionately even lower, received two special advances.

Up to the beginning of the war, negotiations for the three services had been separate. During the war, however, war bonuses were granted equally to all grades in all services. There were also certain special increases negotiated separately—two for Country busmen, and for tramwaymen and trolleybusmen the last step to parity with Central bus conductors.

Since the war, negotiations have been wholly common: the increases granted have however differed. In contrast to the railway practice the lower-paid have always received the same or more—with two exceptions. In January 1951, and again in January 1952, tram and trolleybus drivers received more than conductors, and thus finally reached parity with Central bus drivers. For, as part of the policy of converting the remaining tram routes to bus routes and not, as before the war, to trolleybus routes, it was determined to assimilate the wages and conditions of tram and trolleybus drivers and conductors to those of Central busmen. Thus for the first time a differential between drivers and conductors was established on London trolleybuses (and also on the trams, while any remained); and thus there is now, on the Central road services, a single scale of pay for all drivers and another for all conductors. Country busmen still remain some way behind—although well ahead of provincial busmen.

In Table IV we examine the changes in skill differentials on the buses. Again absolute differences are given, together with the percentage levels of conductors' rates in relation to drivers' rates in the same service. These changes have been summarised to show how much of the narrowing has been due to larger increases (or smaller decreases) in conductors' rates.

¹ *L.P.T.B. Fifth Annual Report and Accounts, 1937-8*, p. 15.

² Only rates for Country buses are shown. Those for Country coaches (*i.e.* Green Line) were identical for conductors but higher for drivers.

TABLE IV
Skill Differentials (L.T. Buses)

	Money difference between conductors' and drivers' rates		Conductors' rates as percentages of drivers' rates	
	Central buses	Country buses	Central buses	Country buses
<i>Position at December 1920</i>	—13/—	N.A.	87.0	N.A.
<i>Net changes 1921–33 from :</i>				
common decreases		N.A.	—0.9	N.A.
extra decreases	+5/—	N.A.	+4.8	N.A.
<i>Position at December 1933</i>	—8/—	—12/6	90.9	82.6
<i>Net changes 1934–39 from :</i>				
common increases			+0.2	
extra increases	+2/—	+4/—	+2.2	+5.5
<i>Position at August 1939</i>	—6/—	—8/6	93.3	88.3
<i>Net changes 1939–45 from :</i>				
common increases			+1.5	+3.4
extra increases		+1/—		+1.0
<i>Position at December 1945</i>	—6/—	—7/6	94.8	92.6
<i>Net changes 1946–51 from :</i>				
common increases			+0.8	+1.6
extra increases	+2/—	+2/6	+1.6	+2.1
<i>Position at December 1951</i>	—4/—	—5/—	97.2	96.3

Note.—All figures are derived from Table III (*q.v.*). For the definitions of 'common' and 'extra', see note to Table II. 'Common' means common between drivers and conductors in the same service and not between services.

On the buses the differentials have always been narrow.¹ On Central buses they have been narrowing consistently—even in the 'twenties, when in most industries there was a definite widening²—and by now the rates differ by less than 3 per cent. Very little of the narrowing has been due to the practice of granting flat-rate increases: mostly it has come from the closing of the money gap in peacetime. Some part can probably be attributed to an easing of the driver's job. For during the last twenty years, although traffic congestion has worsened, several technical innovations (automatic gear-changing, 'finger-tip' steering, and electrically heated cabs) have benefited the driver; whereas the conductor's job has changed little since the introduction of roofs, and later of covered staircases, gave them protection from the weather. Indeed, the increased capacity of buses has tended to make their work heavier—although restrictions have recently been imposed on the number of standing passengers. But the narrowing also reflects the policy

¹ Differentials in earnings have for men been nearly identical with those in rates. Usually they were fractionally wider, though on occasions fractionally narrower. (For tramwaymen and trolleybusmen there has always been a slight differential in earnings of about 1 per cent, in spite of the absence of a differential in rates).

² BULLETIN, April 1951.

of the 'Transport and General Workers' Union, which in 1947 even proposed a complete abolition of the differential.¹

On the Country services the narrowing has been still sharper; for the differential was much wider in 1933. Again the major part of the narrowing has come from a closing of the money gap; but flat-rate increases have also been important. By now the rates differ by less than 4 per cent—scarcely more than on the Central buses.

III. EARNINGS

In road and rail transport—in contrast, say, to engineering—earnings are closely connected with rates, although they differ by quite a considerable margin. The maximum rate represents the payment that would be made to a fully qualified worker for the standard weekly number of hours if none of these commanded special rates (such as those for overtime and Sunday working). In practice however the duty rosters involve some work at these higher rates, and earnings have therefore nearly always exceeded rates. The excess is of course closely related to the conditions of service. These conditions, like the rates, have been separately regulated for the different services, and have tended to conform with those covering similar transport workers in the rest of the country. As therefore they have differed between services, we will consider earnings in each service separately.

(a) Railways

Average earnings diverge from maximum rates for two reasons. Firstly, not everyone receives the maximum rate; and, secondly, certain payments are not included in it. For there are four ways in which workers can earn more than their standard rate. (i) They may receive certain extra weekly allowances. Two of these—the 3s. London rent allowance for trainmen and the 4s. 10d. airworked door allowance for guards, (both now consolidated in the standard rate)—have been included in the rates as shown in Table I. One other allowance—the 2s. 6d. paid to guards qualified as motormen—remains; this cannot be included as the number of guards receiving it in the past is not available, although it is known that all guards do, by now, receive it. (ii) They may work² part of the standard weekly hours at times which command higher rates (nights, public holidays, etc.). (iii) They may work scheduled overtime in excess of the standard weekly hours (mainly Sundays, which on the railways do not form part of the standard working week.) (iv) They may work unscheduled overtime,³ if this should be called for.

¹ *British Transport Commission Report and Accounts for 1948*, p. 150.

² Or perhaps be paid for hours not worked. Workers are often paid for certain hours in which no actual 'work' is done. In L.T. hours worked mean only hours spent on a vehicle, together with 'reporting', 'travelling', and 'vehicle changeover' time. According to the 1948 schedules for trainmen the hours worked amounted to 36 1/3—33 actually spent on the vehicle: the remaining 7 2/3 hours of the 44-hour week consisted of 3 2/3 paid mealtime and 4 paid 'stand-by' time.

³ Including unscheduled excess 'spreadover' times. When work is done in split turns, there are restrictions, to which the schedules must conform, on 'spreadover'—i.e. on the length of the period from the beginning of the first to the end of the second turn; and any time above the scheduled spreadovers counts as overtime, just as if it had been worked.

(ii) and (iii) depend both on the level of rates for overtime, etc. (for details see Appendix), and on the rosters being worked. The latter may vary between depots and between individuals, while both will be changed from time to time by collective agreement. (iv) is seldom extensive; and it is therefore possible, even without figures of average hours, to account for some of the variations in the excess of earnings over rates.

In Table V we show the average weekly earnings of all workers receiving pay in each occupation (*i.e.* for motormen, both night-¹ and day-motormen; and for stationmen, both men and women since 1950, and before 1930 both grades).

TABLE V
Average Weekly Earnings (L.T. Railways)

	<i>motormen</i>	<i>guards</i>	<i>stationmen</i>
1923... ..	102/1	68/5	56/1
1924... ..	103/9	69/2	53/11
1925... ..	103/6	68/10	57/8
1926... ..	101/5	67/6	55/3
1927... ..	102/4	71/5	55/6
1928... ..	102/9	72/-	57/8
1929... ..	102/11	75/8	58/7
1930... ..	103/8	77/7	61/6
1931... ..	103/3	78/-	61/3
1932... ..	103/1 (104/6)	77/5 (78/5)	61/- (61/8)
1933... ..	100/7 ¹ (104/10) ¹	79/6 ¹ (82/8) ¹	55/3 ¹ (57/1) ¹
1934... ..	100/11 (105/-)	79/6 (82/6)	54/4 (56/1)
1935... ..	104/6 (105/5)	83/2 (83/10)	56/10 (57/4)
1936... ..	105/5	83/8	57/1
1937... ..	106/3	84/5	54/11
1938... ..	105/5	83/4	58/8
1939... ..	106/-	83/3	62/-
1940... ..	115/4	93/4	71/4
1941... ..	120/11	98/9	73/4
1942... ..	124/2	101/5	78/7
1943... ..	131/-	110/9	86/3
1944... ..	136/9	114/11	87/3
1945... ..	143/2	120/11	90/11
1946... ..	150/4	129/-	101/8
1947... ..	161/5	138/6	111/10
1948... ..	167/9	143/6	120/7
1949... ..	166/1	142/-	118/10
1950... ..	168/1	143/2	121/6
1951... ..	187/2	157/5	131/10

Notes.—Before 1933, Underground group of companies only. All figures are annual averages. Figures in brackets are estimates of earnings before deduction of percentage cuts (see p. 265). From 1940, figures for stationmen are averages for men and women together.

¹ Latter six months only.

Motormen's earnings remained very stable at about 10 per cent above their maximum rate until 1931. This excess varied by no more than 2 per cent—except in 1926, when the General Strike affected earnings. In 1932 the percentage cuts on earnings came into operation; and we therefore show, in brackets, nominal earnings.² For motormen, these adjusted figures show a slight rise.

¹ This grade, which is rather better paid, was introduced after the second war.

² See Table I, note 6.

Guards' earnings were fairly steady at a level just above their maximum rate until 1926—when again there was a slight fall associated with the General Strike. From then they climbed steadily, and by 1933 guards' nominal earnings were nearly 14s. higher than in 1925. Of this change, 4s. 10d. was due to the introduction of the airworked door allowance; the remaining 9s. (equivalent to 12 per cent of their maximum rate) brought the excess of their earnings to a level comparable with that for motormen. This change was associated with a sharp fall in numbers: while the number of motormen receiving pay rose by 8 per cent, that of guards fell by 14 per cent, and there was therefore a substantial rise in overtime and other such extra payments.

For stationmen before 1933, the relation between rates and earnings was more complicated: not only were there two grades, but from 1926 there were also two rates—with and without cost-of-living bonus—within each grade;¹ and the relative numbers receiving these various rates are not known. Later in the 'twenties a further complication arose, as the airworked door led to extensive redundancy among gatemen—who were kept on as acting porters but retained their higher rates. Moreover this redundancy virtually stopped the recruitment of porters, so that very few would have been receiving the starting rate, which was introduced when the two grades of porters were merged. These special factors explain the sharp rise in earnings between 1927 and 1932 although rates were falling slightly. In 1933 earnings dropped sharply, partly as the result of the percentage cuts imposed. But nominal earnings also dropped considerably, and this was mainly due to the disappearance of the special factors mentioned, but partly also to a change in the coverage of the figures. For from 1933 the figures include the Metropolitan Railway, on which, since gatemen had not yet become redundant, earnings bore the same sort of relation to rates as had prevailed on the London Electric Railways before the introduction of the airworked door.

From 1933 we show for each grade the relation between earnings and rates (Graph I). As before 1933, the excess of earnings for motormen remained very stable over long periods; that for guards followed the motormen's fairly closely, but with rather less stability. That for stationmen showed very wide fluctuations which, except during the war, seem almost a caricature of the very much smaller changes for the other grades. We shall therefore study the motormen first.

The motormen's excess remained stable until 1939. There was however one minor fluctuation—a slight rise in 1937, which disappeared in 1938. This was probably due to the granting of a special bonus to celebrate the Coronation² (and possibly to a little extra overtime arising from the diversion of traffic³ caused by the 'Coronation' bus strike).

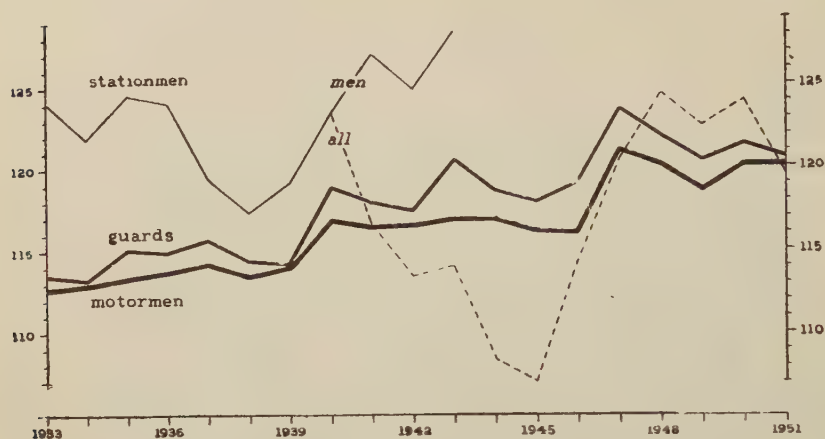
Since 1939 there have been three major changes in the motormen's excess. The first occurred in 1940, when there was a 3 per cent rise in the excess to about 17 per cent—at which level it remained stable until 1946. However, at

¹ See Table I, note 3.

² L.P.T.B. *Fifth Annual Report and Accounts*, 1937-8, p. 28.

³ L.P.T.B. *Fourth Annual Report and Accounts*, 1936-7, p. 9.

I. Earnings as percentages of maximum rates (L.T. railways)



different times there were different reasons for this level. In 1940-1 it was the dislocation caused by the blitz: emergency services had to be run, while there was inevitably rather more waiting time. There was thus an increase both in unscheduled overtime and in the number of hours paid for but not worked. By 1942 however it was possible to improve the services but, in view of the smaller staff, only by increasing the extent of scheduled overtime. As the staff was cut further in 1943-4, the services had to be cut in their turn, and scheduled overtime remained at about the same level until the end of the war. The return of men from the Forces might have been expected to cause a considerable fall in the excess, as it became possible to reduce overtime greatly. But the decrease in overtime working was offset by the 1945 alteration in the Sunday rate from time-and-a-half to time-and-three-quarters. Since this change was equivalent to an addition of about 2 per cent to the excess,¹ it accounts for most of the difference between the levels of the excess in 1946 and pre-war. This suggests that overtime was more or less back to normal.

In 1947 the excess rose by 5 per cent. This change was almost entirely due to the reduction in September of the standard week from 48 to 44 hours without any cut in the weekly rate (*i.e.* a rise of 9 per cent in the hourly rate). Such a reduction, however, takes time to implement in actual working arrangements—whether by taking on more staff or by reorganising the rosters so as to reduce waiting time: the necessary changes were not completed until 1948.² It was therefore inevitable that some hours which had previously formed part of the standard working week should have continued, temporarily, to be paid for—and at an enhanced rate. So long as hours paid for remained

¹ This assumes that Sunday services are about half the normal weekday services.

² *B.T.C. Report and Accounts for 1948*, p. 151.

unchanged, the excess would have risen by at least 12 per cent,¹ and therefore for the whole of 1947 by 4 per cent. Thus it seems likely that there was little or no decrease in hours paid for during 1947.

In 1948, with the full implementation of the standard week, the excess fell back. The staff also increased (the average numbers receiving pay rose by about 11 per cent between 1947 and 1948); but this was largely accounted for by the extension of services (car-miles rose by $9\frac{1}{2}$ per cent.) In 1949, however, the numbers receiving pay rose twice as fast as the car-miles, and the excess therefore fell still further. One other reason for this fall should be mentioned: promotion to the motormen's grade had been heavy since the war, and there were therefore appreciable numbers still receiving less than the maximum rate. This may explain the partial recovery of the excess in 1950.

Generally speaking, the changes we have been discussing for motormen have occurred for the other grades; and, naturally, for very similar reasons. In considering changes in the excess for guards and stationmen, it would be tedious to repeat these reasons; and therefore we shall confine ourselves mainly to those variations which did not occur for motormen.

For guards the excess has always been slightly greater than for motormen. One general reason for this is the 2s. 6d. allowance to guards qualified as motormen—which in 1951 amounted to 2 per cent of the maximum rate. Since nearly all guards are now so qualified, the difference between motormen and guards since 1947 shown in Graph I is fully explained. Possibly some of the difference before the war was also due to this factor: while fewer guards were probably so qualified, the allowance was proportionately larger. Apart from this difference, the curves for guards and motormen have differed little; and, where they have, the curve for stationmen has tended to move much more markedly in the same direction. It will therefore be best to concentrate on stationmen.

The excess for stationmen (though not for stationwomen) has always been higher than for the other grades. This implies that stationmen have always done rather more overtime; for instance, they have to do more Sunday work.² The amount of overtime has however varied greatly, and this variation seems largely to have been associated with changes in the numbers receiving pay. Such changes are sharper than, and usually precede, the corresponding changes for the other grades. This is mainly because the stationmen's grade is the chief recruiting ground for all the railway grades considered,³ so that, when any large extension of services is planned or when any other conditions arise necessitating a general expansion of staff, there will have to be some

¹ Of which $11\frac{1}{4}$ per cent would be due to 4 week-day hours at overtime rate (assuming no nightwork), and $\frac{3}{4}$ per cent to additional payment for Sunday working (because of the higher hourly rate).

² Station staff work two out of three Sundays, train staff only three out of five.

³ *E.g.* the number of stationmen receiving pay rose relatively more than those of guards and motormen in 1934, in 1937, and in 1948; but it remained unchanged in 1935, and fell in 1938 and in 1949—although the numbers in the other grades were continuing to rise.

preliminary recruiting of stationmen to allow the extra staff to be trained in advance. At such times, therefore, the increase in the number of stationmen receiving pay comes earlier than, and is greater than, the increase in the actual requirements for stationmen *qua* stationmen. Moreover, the depressing effect of such recruitment on the excess will be enhanced by the greater proportion receiving the starting rate at such times (except of course after 1947, when the stationmen's qualifying period was abolished).

It is, however, difficult to isolate this factor. Thus in 1939 a rise in staff did not lead to a fall in the excess, since services were then beginning to be extended. But the heavy recruitments of 1934 and 1937 were clearly reflected in sharp falls in the excess. In 1935 the fall of the previous year was made good, as one would expect; but in 1938 the trade recession brought a slight reduction in services and therefore postponed the recovery until 1939.

From 1941, the employment of an increasing number of stationwomen makes it hard to estimate the degree of staff shortage, since women tend to be paid for rather fewer hours. Therefore, although the total number of workers in the stationmen's grade changed little between 1940 and 1941, there was probably a greater effective shortage in the latter year, as by then over half were women; also, the use of stations as air-raid shelters may have involved extra duties. In 1942 there was a cut in staff, but this was presumably more than offset by the reduction in the special duties associated with the blitz. In 1943 however the effective staff shortage grew worse as still more women replaced men and the stationmen's excess rose sharply. (In this year an equally sharp rise occurred for guards—the only time when staff shortages appear to have made their excess diverge appreciably from that of motormen.) From 1944 we have no separate data for stationmen apart from stationwomen; and so on Graph I we can only show movements in the combined average, which is more sensitive to changes in the relative proportions of men and women than to most of the other factors we have been considering. In order therefore to interpret this combined average, we must first compare the relative earnings of stationmen and stationwomen; this we can do only for the years 1941–3 and for one week in 1951.

There are three reasons why women have earned less than men: firstly, until 1950, their maximum rates were lower; secondly, there have always been more on rates below the maximum—both because the level of female employment has varied considerably, and because in general the turnover of women workers tends to be higher; thirdly, on the whole, they work fewer hours. In Table VI we try to eliminate the effect of the first two factors. For each year from 1941 to 1943, and for one week in 1951, we compare the percentage excess of men's earnings over their maximum rate with that of women's earnings over (i) the men's maximum, (ii) the women's maximum, and (iii) the women's weighted rate (*i.e.* the average of their rates weighted by the numbers receiving each rate). The difference between (i) and (ii) shows the effect of lower maximum rates, and that between (ii) and (iii) the effect of the higher proportion of women receiving less than the maximum

TABLE VI
Average Weekly Earnings of Stationmen and Stationwomen

	1941	1942	1943	1951 ¹
stationmen	79/10	86/5	97/-	141/8
stationwomen	67/1	71/11	79/9	128/5
<i>Men's earnings as percentage of men's maximum rate</i> ...	126.9	124.8	128.3	122.1
<i>Women's earnings as percentage (i) of men's maximum rate</i> ...	106.6	103.9	105.5	110.7
<i>(ii) of women's maximum rate</i> ...	111.3	109.1	111.4	110.7
<i>(iii) of women's weighted² rate</i> ...	116.5	113.0	114.2	N.A. ³

¹ For week ending December 8th.

² The weighted rate has been calculated on the basis of the actual numbers of women receiving the different rates of pay in each year.

³ No weighted rate available. The earnings formed 114.7 per cent of the starting rate.

rate.¹ In 1941 men's earnings were 27 per cent, and women's earnings 6½ per cent, above the men's maximum. But in the difference between these figures roughly 6 per cent was due to the lower maximum and another 5 to the second factor; thus other factors accounted for only about 10½ per cent. In 1942 this figure rose to 12, and in 1943 to 14. If these differences could be wholly attributed to differences in hours worked at ordinary overtime rates,² they would be equivalent to differences of 4, 4½, and 5½ hours each week. Since, however, some of the extra work was probably more highly rated, and since also some of the extra hours paid for probably corresponded to longer spreadovers rather than to extra hours actually worked,³ these figures considerably overestimate the real differences in hours worked. They do however indicate that the differences were substantial,⁴ and moreover they suggest that these differences tend to rise as the amount of overtime rises: that is, that women are less able or less inclined to work long overtime. The differences have persisted in peacetime, but the 1951 figures suggest that they have become less marked.

In 1941 the proportion of women in the stationmen's grade was already over half, and by the end of the war had risen to about three-quarters. This seems a complete explanation of the fall in the average excess to the very low level of 1945. After this the number of women fell off rapidly to about a third of the total, and the excess rose correspondingly. (Also, of course, the introduction of the 44-hour week had similar effects to those already discussed for motormen.) However, its continued rise in 1948, in contrast to the falls for motormen and guards, is rather more unexpected, as there was a sharp increase in the number of stationmen receiving pay. But the work load

¹ Ideally, a weighted rate for men should also be used. However, the difference between such a rate and the maximum would have been very slight, because of the war-time stop to male recruitment. In 1951, of course, the two rates were identical as there was no qualifying period.

² See Appendix table C.

³ See p. 261, n. 3.

⁴ This is not only because of domestic duties, but also because women's sickness rates are higher. Thus a higher proportion of part-week earnings are included in the averages.

increased correspondingly¹: the rise in the excess was due primarily to the fall in the proportion (though not in the number) of women. Moreover, 1948 was the first full year in which the changes in starting rates and qualifying periods were effective.² In 1949 and 1950 the excess fell off and rose in the same way as for motormen and guards; and, finally, in the generally rather tighter labour situation of 1951, women were again taken on in large numbers and the excess fell off sharply once more.

One last factor should perhaps be mentioned, although it cannot easily be isolated. Before the war, the extra stationmen needed in the summer to replace workers on annual leave were taken on temporarily and then discharged. In the changed employment situation since the war this has no longer been practicable, and therefore the number of stationmen has been kept more even throughout the year. Thus there is now more payment for overtime in the summer and less in the winter. The net effect is probably a slight increase in the excess as compared with pre-war years, but one cannot be more precise.

(b) Roads

(In this section of the article, 'buses' refer to Central buses only. 'Trams,' unless a specific distinction is made, refer to trams and trolleybuses.)

On the roads, average earnings diverge less from maximum rates than on the railways. The main reason for this is the different definition of the standard working week,³ which on the roads includes Sunday work: the paid hours on the roads⁴ are therefore fewer,⁵ as the regular Sunday work is not overtime. On the other hand, spreadovers, scheduled as well as unscheduled, above certain specified limits, attract extra payments to a much larger extent than on the railways. Otherwise the reasons for the divergences are essentially the same. In Table VII we again show the average weekly earnings of all workers receiving pay in each occupation—conductresses being included with conductors from 1940.

On the buses before 1933, the excess of earnings over maximum rates fluctuated between 3 and 9 per cent. For conductors, the excess kept low until 1924, and then rose suddenly to a peak—from which it fell off fairly steadily until 1934. There were two negotiated alterations which help to explain the higher level of the excess in the later 'twenties: firstly, in 1925, when the war bonus was consolidated into the basic rate, payment for certain types of overtime, hitherto calculated on the basic rate only, was automatically increased; secondly, in 1926 the reckoning of overtime was altered from a

¹ Much of the increase in numbers of stationmen was due merely to the transfer of station staff and duties from the joint lines to the London Transport Executive.

² See Appendix table B.

³ For a comparison of some of the conditions of service, see Appendix.

⁴ Again, hours paid for are more than hours worked. For instance, according to the 1948 Central bus schedules, the standard 44-hour week included only 41 hours worked—and of these 3 1/5 were 'reporting', 'travelling', and 'vehicle changeover' time (*B.T.C. Report and Accounts for 1948*, p. 152).

⁵ In fact, hours worked on the road services are not significantly fewer than hours worked by trainmen, as trainmen's meal times are paid for while busmen's are not (see p. 271, n. 2, and note immediately above).

TABLE VII
Average Weekly Earnings (L.T. Road Services)

	Central buses		Trams and trolleybuses	
	drivers	conductors	drivers	conductors
1920 ...	96/7	83/3	N.A.	N.A.
1921 ...	103/5	89/5	N.A.	N.A.
1922 ...	97/8	87/6	N.A.	N.A.
1923 ...	94/11	84/4	N.A.	N.A.
1924 ...	91/7	83/5	N.A.	N.A.
1925 ...	97/11	88/4	N.A.	N.A.
1926 ...	95/4	86/5	N.A.	N.A.
1927 ...	95/11	86/4	N.A.	N.A.
1928 ...	93/10	84/9	N.A.	N.A.
1929 ...	94/4	85/1	N.A.	N.A.
1930 ...	94/1	84/9	N.A.	N.A.
1931 ...	92/7	83/10	N.A.	N.A.
1932 ...	92/5	83/10	N.A.	N.A.
1933 ...	91/11 ¹	83/7 ¹	N.A.	N.A.
1934 ...	91/10	84/6	N.A.	N.A.
1935 ...	94/4	87/-	79/2	78/6
1936 ...	94/2	87/3	83/-	81/10
1937 ...	94/5	87/8	84/5	83/7
1938 ...	94/2	87/6	82/7	82/1
1939 ...	94/9	87/8	85/6	84/11
1940 ...	100/9	94/5	93/7	92/9
1941 ...	104/-	95/6	97/2	92/9
1942 ...	108/-	98/8	100/11	95/-
1943 ...	114/3	104/3	108/11	102/7
1944 ...	124/3	109/6	115/11	108/-
1945 ...	126/10	109/10	116/11	108/9
1946 ...	127/6	117/6	123/8	118/11
1947 ...	128/6	120/10	128/3	123/10
1948 ...	141/6	134/11	135/10	132/5
1949 ...	143/3	137/6	138/10	135/10
1950 ...	144/10	139/6	140/8	137/5
1951 ...	157/3	150/3	157/9	149/6

Notes.—All figures are annual averages. Before 1933, L.G.O.C. only. From 1940, figures for conductors are averages for men and women together.

¹ Latter six months only.

weekly to a daily basis. But probably more important were changes in the services. For even in the early 'twenties motor buses were still relatively novel, and the number of passengers was expanding very¹ rapidly. This growth may have helped to cause a peak in overtime in 1925-7; but by the end of the decade the rate of growth had declined, and it may have become possible to eliminate some of the extra overtime, particularly after the 1932 'speeding-up' agreement. By 1934 the excess had sunk to 3 per cent, a level which can be wholly explained by the higher rates for work on Sundays¹ and Bank Holidays.

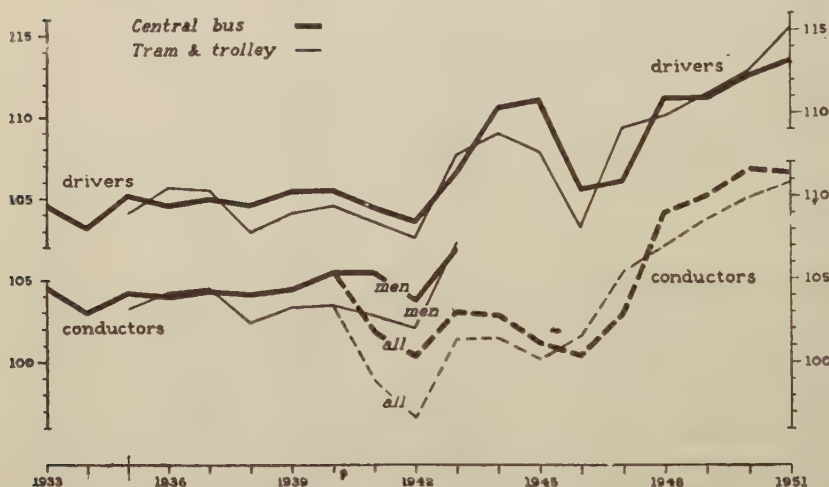
For drivers, the excess of earnings over rates fluctuated rather more, but on the whole followed the main movements for conductors, presumably for similar reasons. The slightly greater tendency to fluctuate may be due to the longer period needed to train drivers, which would make it difficult to obtain

¹ This assumes that Sunday services are about two-thirds of the normal weekday services.

quickly the extra drivers required for an expanded service. However, this suggestion cannot be confirmed, as we have no figures of the numbers receiving pay.

From 1933 for buses, and from 1935 for trams, the relation between earnings and rates is shown in Graph II. For both drivers and conductors

II. Earnings as percentages of maximum rates (L.T. road services)



on the buses, the excess of earnings fell sharply in 1934, but recovered fully in the following year. This fall was in part merely the culmination of the steady decline since 1927; but the taking over by the L.P.T.B. of further companies may have made possible some saving of labour by a more efficient organisation of services. In 1935 the general revival brought more work, and with it a recovery in the excess; and from then until the war the excess remained stable for both grades.

On the trams, however, there was a sharp fall in 1938. As on the railways, this appears to have been due to an increase in staff recruited in preparation for an extension of services. In the year 1938-9, trolleybus services expanded more than tram services declined.

From 1940, the excess for conductors in both services was affected by the employment of conductresses, and it will therefore be convenient to study the drivers first. Whereas on the railways the war brought an immediate rise in the excess of earnings over rates, the bus drivers' excess did not rise: indeed, in 1941 and 1942 it fell off. For on the buses, as not on the railways, the war brought a severe cut in services: by 1942, bus miles had fallen by nearly a third. In 1940 and 1941, this cut had been more than matched by a fall in demand; and, although from 1942 demand recovered, it was impossible to prevent services falling further—partly because of shortages of petrol, oil,

and rubber,¹ but also, from 1943, because of labour shortage. In order to prevent an even greater decline in services, a considerable relaxation in the regulations limiting spreadovers was agreed. At the same time, larger spread-over payments were instituted; and the excess of earnings therefore rose sharply in 1943-4. In late 1945, when the drivers began to return from the Forces, they were apparently at first employed in improving the services. In 1946, however, it was possible also to reduce the extent of spreadovers, and the excess fell back to near its pre-war level.

In June 1947, the 44-hour week agreement was signed, but was not implemented until October, by which time schedules on the new basis were ready. This was in sharp contrast to the railways, where the 44-hour week agreement was immediately implemented in so far as hourly rates of pay and the definition of overtime were concerned, and where in consequence there was an immediate temporary rise in the excess of earnings over rates. Under the new bus schedules, hours worked fell little (probably by about an hour²), but there was a sharp cut in the number of other hours paid for. However, as the excess rose substantially in 1948, it appears that it was not possible to make the full 4-hour cut in the hours paid for and, therefore, that the amount of overtime increased. Since in 1948 a higher rate for Sunday working was introduced, equivalent to an addition of about 2½ per cent to the excess, about another 2½ per cent was mainly due to the 44-hour week agreement. This latter is equivalent to an increase of roughly one hour in overtime; but, as spreadover payments were increased between 1947 and 1948, the increase in overtime was probably rather smaller than this.

The excess did not increase in 1949, but began to rise again in 1950—rather surprisingly, as there was apparently no greater stringency of staff: indeed, the numbers receiving pay rose more than bus miles. However, the ending of petrol rationing and the general increase in the number of vehicles on the road worsened traffic congestion in the centre³ and may have reduced the speed of some services. Moreover, in 1951, special services run in connexion with the Festival of Britain caused an increase in overtime; private hire and excursion work also increased.

The curve for tram drivers has followed the main movements discussed above for bus drivers; but the timing has sometimes differed. As with bus drivers, the wartime shortage of tram drivers does not appear to have become serious before 1943, the numbers receiving pay having fallen less than tram miles. Even in the latter part of the war, the labour shortage seems not to have become as acute as on the buses. However, the gap between the two curves overstates the difference in the amount of overtime, as spreadover

¹ *L.P.T.B. Twelfth Annual Report and Accounts*, 1945, p. 28. The fall for trams, which these shortages did not affect, was less serious—only 12 per cent by 1942.

² This figure is derived from two of the returns made by L.T. to the Ministry of Labour in connexion with the bi-annual Earnings and Hours Inquiry—those for single weeks in April 1947 and April 1948. As these returns referred not merely to drivers but also to conductors and maintenance staff employed at Central bus garages and depots, the figure of 1 hour can only be regarded as approximate.

³ *B.T.C. Report and Accounts for 1950*, p. 159.

payments, both before and after the changes in 1943, were rather less generous on the trams. When the drivers began to return from the Forces, they appear to have been employed at first to reduce spreadovers rather than to improve the services, which did not pick up substantially until 1946.

The advent of the 44-hour week brought a reduction in hours worked to practically the same level as for the buses; they had previously been about 2 hours higher.¹ Again, the new schedules giving effect to this change were delayed by four months beyond the signing of the agreement in June 1947, and during this period special compensatory payments² were made in view of the excess hours being actually worked. The new schedules again appear to have failed to secure the full 4-hour cut in hours paid: because of this, as well as because of the change in the Sunday rate, the rise in the excess caused by the special compensatory payments was more than maintained in the following years.

Since 1949, the tram drivers have gained appreciably on the bus drivers—1 per cent in 1949, and 2 per cent in 1951. The latter gain was probably associated with the major tram conversion scheme which began in October 1950 and was completed by July 1952. If so, this gain suggests that trolley-bus drivers on the whole earned rather more than tram drivers.

For conductors, the developments during and after the war have been somewhat different. In contrast to the drivers', the bus conductors' excess of earnings rose in 1940: this was because their numbers had fallen much more sharply. The men conductors further increased their relative lead over drivers in 1951; the easing of the staff shortage which caused a decline of the drivers' excess did not do so for conductors, since the ending of male recruitment meant that a higher proportion were receiving the maximum rate. By 1942, the increasing number of conductresses eased the staff shortage still further and reduced the men's excess—though only temporarily. On the trams, the numbers of drivers and men conductors were both stable in 1940, and therefore the conductors' excess followed that of the drivers closely.

From 1941 there was of course a sharp fall in the average excess for all conductors in each service. This was again due to the employment of women, who earned less than the men for two reasons. Although the maximum rates of conductresses have been the same as those for conductors, there were more of them on lower rates, both because of their higher turnover and because, before 1950, their qualifying period was six months longer. They also, on the whole, worked rather fewer hours. In Table VIII, the analogue of Table VI, we again try to eliminate the effect of the first factor by comparing the percentage excess of men's earnings over the maximum rate with those of

¹ This figure is again derived from returns made by L.T. to the Ministry of Labour in January and October 1946 and in April and October 1947. These returns relate to other male workers besides drivers in each service (see p. 281, n. 2). During the war, the difference in hours worked had fluctuated between $1\frac{1}{2}$ and 3; from 1948 to 1950 (when the returns were discontinued) it never rose above $\frac{1}{2}$. According to the 1948 schedules, average *scheduled* hours on the trams were 6 minutes above, and on the trolleybuses 12 minutes above, the Central bus figure of exactly 41 hours (*B.T.C. Report and Accounts for 1948*, p. 152).

² *L.P.T.B. Fourteenth Annual Report and Accounts, 1947*, p. 37.

TABLE VIII
Average Weekly Earnings of Conductors and Conductresses

	1941	1942	1943	1951 ¹
<i>Central buses</i>				
conductors	98/10	102/-	108/2	154/6
conductresses	82/4	91/2	97/9	147/10
<i>Trams and trolleybuses</i>				
conductors	96/3	100/4	108/3	154/8
conductresses	78/10	85/1	94/2	146/5
<i>Central buses</i>				
Men's earnings as percentage of maximum rate	105.4	103.8	106.8	110.0
Women's earnings as percentage (i) of maximum rate	87.8	92.8	96.5	105.2
(ii) of weighted ² rate	99.1	98.7	100.2	N.A. ³
<i>Trams and trolleybuses</i>				
Men's earnings as percentage of maximum rate	102.7	102.1	106.9	110.1
Women's earnings as percentage (i) of maximum rate	84.1	86.6	93.0	104.2
(ii) of weighted ² rate	99.7	96.4	99.6	N.A. ³

¹ For week ending December 8th only.

² The weighted rate has been calculated on the basis of the actual numbers of women receiving the different rates of pay in each year.

³ No weighted rate available. The earnings formed 109.9 per cent of the starting rate on the Central buses and 109.7 per cent on the trams and trolleybuses.

women's earnings over the maximum and the weighted rates. In 1941 bus conductors earned $5\frac{1}{2}$ per cent above, and bus conductresses 12 per cent below the maximum. But in the difference between these figures roughly 11 per cent was due to the higher proportion of women on lower rates; thus other factors accounted for only about $6\frac{1}{2}$ per cent. In 1942 this figure fell to 5, and in 1943 it reverted to $6\frac{1}{2}$. If these differences could be wholly attributed to differences in hours worked at ordinary overtime rates,¹ they would be equivalent to differences of $2\frac{1}{2}$, 2, and $2\frac{1}{2}$ hours each week. On the trams, the corresponding figures would be 1, 2, and $2\frac{1}{2}$. Since however some of the extra work was probably more highly rated, and since also some of the extra hours paid for probably corresponded to longer spreadovers rather than to extra hours actually worked,² these figures overestimate the real differences in hours worked. In 1951, the absence of exact evidence on which to determine weighted rates makes it impossible to produce similar figures. All one can definitely say is that such figures would lie between 0 and $1\frac{1}{2}$ for buses, and between 0 and 2 for trams. However, as female staff were being recruited fairly fast in 1951, the weighted rates can hardly have been very near the maximum; nor, on the other hand, are they likely to have been very near the starting rates, as the number of conductresses had not previously fallen to zero. Therefore one may conclude that in 1951—when it was possible to be more selective in recruiting women than during the war—although some difference in hours still remained, it was by then very small. At all times the difference has certainly been much smaller than in the stationmen's grade.

¹ See Appendix table C. ² See p. 278.

And this is natural enough, both because less overtime is normally worked in the conductors' grade and because driver and conductor work together as a unit.¹

The proportion of conductresses was never as large as that of stationwomen: it rose from about one-fifth in 1941 to just over half by the end of the war. Because of this, and because the earnings of conductresses are nearer the men's, the average excess of earnings over rates in the conductors' grade never fell so far from its pre-war level as it did in the stationmen's grade. Moreover, the curves are not so completely determined by changes in the proportion of women employed: for instance, the staff shortage which began in 1943 shows up very clearly.

From the end of the war, the number of conductresses fell off until 1950. Therefore, the conductors' excess gained on the drivers'—heavily in 1946, and rather less thereafter. In 1951 the generally rather tighter labour situation caused the recruitment of women to be resumed, and the conductors therefore gained less than the drivers.

This study of the excess of earnings has been rather detailed. The cases in which such a treatment could be undertaken are few; for it would not usually be possible—even if one had annual or other continuous figures of earnings—to separate out so clearly the effects of changes in the conditions of service. While therefore it seemed worth testing, in so favourable a case, how far even minor fluctuations in earnings could be accounted for, it is not necessarily proposed to repeat this procedure in future articles.

IV. SUMMARY AND CONCLUSION

Before proceeding to consider any more general questions, we shall summarise under a few heads the main developments of rates and earnings for the London Transport operating grades covered in this article.

- (1) Since 1933, rates and working conditions on the Central road services have been progressively unified, and are by now completely uniform. Country service rates and conditions still differ from these, but by much less than in 1933.
- (2) London Transport railway rates and conditions have generally followed those of the Main Line railways fairly closely.
- (3) The maximum rates of conductors and conductresses have always been identical: from 1950, their starting rates have also been identical. For stationwomen, the maximum rates were, until 1950, lower than the men's: their starting rates remain lower.

¹ The general impression given by these estimates of the differences in hours worked are, for buses, confirmed by the evidence of the returns of average hours made by L.T. to the Ministry of Labour. According to these returns, the differences between the hours of men and women from 1943 to 1945 varied between $1\frac{1}{2}$ and 2, from 1946 to mid-1948 between 1 and $1\frac{1}{2}$, and from then until 1950 between $\frac{1}{2}$ and $\frac{3}{4}$. For the trams, however, there is no such confirmation: from 1943 to early 1945 the differences varied between $\frac{1}{2}$ and 1, from then until mid-1947 they were negligible, and from that time until 1950 they varied between $\frac{1}{2}$ and 1. Of course, as all these figures relate only to single weeks, and as they compare several grades of men with virtually only one grade of women (nearly all women included in the returns were conductresses), they must be read with large reservations. But they do suggest that our differences for trams were, during the war, attributable more to longer spreadovers than to longer hours actually worked.

- (4) Skill differentials on the buses have narrowed even in money terms ; on the railways they have also narrowed, but not in money terms.
- (5) On the buses, the narrowing has been mostly due to larger increases for the lower-paid; on the railways, to flat-rate increases.
- (6) The gap between rates and earnings is even now not very large, and, except for stationmen, has—for men—remained steady over long periods.
- (7) Major changes in the gap have been due to alterations in the standard working week and in overtime rates.
- (8) Residual variations in the gap—and the pronounced variations for stationmen—have been due in the main to changes in the degree of under- and over-staffing.
- (9) Women, on the average, earn less than men in the same grade; part of the difference appears to be due to their working fewer hours on the average. The difference in average hours was on the whole greater during the war than in 1951.
- (10) Differentials in earnings for men (except stationmen) have been much the same as those in rates.

The grades whose wages we have been studying are operating grades in a consumer service industry. Such industries are very different from the common run of manufacturing industry in their conditions of service, their wage structures, and their reactions to changes in the general economic climate. It will therefore be valuable to try and bring out the features of the wage structures that distinguish such occupations from those we have considered in previous articles.¹

A main feature of a consumer service industry is that output sold differs from output produced; for the essence of a service is that it is readily available whether or not it is fully used. Therefore the chief demand on the operating grades in such a service is for attendance at work over definite daily periods. The scope for piecework or other payment-by-results systems² is small; and in nearly every case payment will be by time. Moreover, the amount of work to be done, although it does fluctuate, can usually be predicted; in retail distribution, for instance, the December peak is anticipated by the taking-on of extra temporary staff; in the same way a proposed extension of passenger transport services will not, normally, be met mainly by increased overtime working. Therefore the predominant feature of wages in a consumer service industry will be the predictability of the pay packet.³ This does not, of course, consist simply of the weekly wage rate, although it bears a known and fairly stable relation to it.

This relation is not identical in all jobs. For even if—as is not always so—

¹ Engineering (BULLETIN, June and July 1951); shipbuilding (November–December 1951); docks (September–October 1952).

² For instance, on the Central buses the only vestige of a payment by results for drivers and conductors was the 'no-accident bonus'; and even that was eventually incorporated in the time rate at a valuation of 1s. 6d. and 6d. for the two grades respectively.

³ Indeed, advertisements for transport staff give greater prominence to earnings for the rostered week than to the standard rate.

the standard working week is the same as the week usually worked, some at least of the hours will be at 'inconvenient' times commanding enhanced rates; and the premia for these hours, may not be the same in different jobs. Nor is the relation between earnings and rates immutable: it has of course been changed by collective bargaining, though less often than has the standard rate. Indeed, a change in overtime rates, or in other enhanced rates, is a common way of conceding or enlarging a wage increase when an equivalent increase in standard rates might well be refused.¹ In manufacturing industry, an agreement to shorten the standard working week without altering the standard rate can also fulfil this purpose; but for London Transport operating grades at any rate—and probably in other consumer service industries—such agreements have not involved a mere reclassification of certain hours as overtime, but a complete recasting of the schedules round a shorter actual working week. But such a recasting cannot be effected overnight, nor can the necessary extra staff always be taken on without delay. There may therefore often be an intervening period in which overtime payments are high.

However, even though in a consumer service industry it is usual to adjust the labour force fairly accurately to the intended services, there will inevitably be some variation in the staffing ratio. In the exclusively male grades, staff shortage is naturally most acute in wartime, but it probably occurs at other times too. For the operating grades of London Transport (except for stationmen) the peacetime variations in the excess of earnings over rates arising from this factor have not been large—not more than about 2 per cent of total earnings.

In engineering, we naturally found a very different picture. There, time-working fitters were earning 8 per cent above their rates in 1926, 5 per cent in 1931, 55 per cent in 1942, and 38 per cent in 1948. Corresponding figures for L.T. motormen were 9, 11, 17, and 20 per cent. And this comparison understates the contrast: for the engineering figures are national averages, and an examination of figures for particular areas or particular firms would show far more startling fluctuations. Some of the variation for engineering was due to the same factors as for London Transport—for example, alterations in overtime rates. But variations due to these common factors were swamped by much larger variations from which consumer service industries are largely exempt. For there arise in engineering innumerable special payments—'lieu', 'incentive', 'bonus', 'merit', etc. (often little related to either merit or incentive)²—which lie outside the standard rate. These must be distinguished from the special payments that we have noted in London Transport,³ since many of them are closely related to the state of trade, and are in fact often designed solely to compensate timeworkers for their inability to keep pace with pieceworkers in times of boom. Furthermore, the extent of overtime—and short time—varies much more in engineer-

¹ The employer is the more inclined to concede such a demand, since its form insures him against paying the increase in bad times.

² An example of such a payment was the 'merit' payment in printing.

³ See p. 271 and p. 285, n. 2.

ing, since the amount of work depends more nearly on the output that can be sold. Therefore, even supposing relative levels of rates not to alter much, workers in consumer service industries will lose relatively in times of booming production, although of course they will be protected in times of slump. For example, if the ratio of earnings to rates is expressed as an index number based on 1938, the 1931 figures for L.T. motormen and Central bus drivers were 99 and 100, while that for timeworking engineering fitters was 86; but the 1948 figure for both the L.T. grades was 106, while for fitters it had risen to 112. (A corresponding figure for male workers in industry as a whole cannot be given; but if the Ministry of Labour wage-rate index could be taken as a guide to changes in male wage rates, the 1948 figure for all industry¹ would be 114. In fact, this figure is an understatement as women's wage rates have, on the average, risen more than men's.)

But relative levels of rates in different industries have not remained unchanged. Between 1938 and 1951,² wage rates for all workers in industry have risen, on the average, by about 115 per cent, while the rates we have been considering, with the exception of stationmen's, have risen far less (Table IX)—the most extreme case being Central bus drivers, whose rates have risen by only 61 per cent. This however is not at all surprising; for it is no more

TABLE IX
L.T. Maximum Weekly Wage Rates : Percentage Changes
(1938=100)

	1933	1938	1945	1951
<i>Central buses :</i>				
drivers	96	100	127	161
conductors	95	100	129	167
<i>Trams and trolleybuses :</i>				
drivers	89	100	132	174
conductors	89	100	132	171
<i>Country buses :</i>				
drivers	100	100	141	187
conductors	94	100	148	204
<i>Railways :</i>				
motormen	96	100	139	177
guards	96	100	149	189
stationmen	92	100	178	232

Note.—Rates used are those for December 31st of each year, as given in Tables I and III.

than an aspect of general national trends which have narrowed the relative gap between high- and low-paid workers. This feature, which we have already studied in an earlier article³ for skill differentials, has in fact applied to virtually all big differences in wage rates for very much the same reasons.⁴ For, particularly in wartime, but also in other periods of sharply rising prices, it is usual not merely for flat-rate increases to be granted to all grades in one

¹ *I.e.* all those industries covered by the Ministry of Labour Earnings and Hours Enquiries.

² December 31st figures.

³ BULLETIN, April 1951.

⁴ Other reasons have of course been at work to close inter-industrial differentials, such as the desire to attract labour to unpleasant and previously depressed basic industries.

industry but also for the increases in different industries to be related to each other.¹

A fairer comparison for the L.T. grades considered would be in relation to other well-paid occupations. For (apart from the stationmen, who have received advances fully comparable with unskilled workers in most other industries) the grades considered were in 1938—and even more in 1933—very near the top of the 'league table' of wage rates. Moreover, the Central London busmen were very much higher in the London 'division' than were provincial busmen in theirs—partly a reflection of better union organisation in London, both before and after the formation of the T. and G.W.U., and partly a reflection of the greater skill and effort needed to cope with London traffic. In Graph III we compare at four different dates, for both Central London and Coventry, the rates of busmen and railwaymen with those of certain other skilled workers—building craftsmen, hand compositors in printing, and engineering fitters. All these rates are shown as percentages of the local rate for fitters—often regarded as the 'typical' skilled occupation. (Coventry has been selected as an example of a provincial city.)² Graph III brings out clearly the very favoured position of London busmen and motor-men in the pre-war period—a position shared by engine drivers and motor-men generally, but not by provincial busmen. Printers also had a pronounced London differential; but for railwaymen, builders, and fitters, the London differential was small—3s. 6d. or less. This difference seems to be partly connected with the form of the negotiating machinery. In printing, the London Society of Compositors negotiated separately; in buses, the L.P.T.B. was not included in any national negotiating body; whereas the engineering, the building, and the railway negotiations were in the main³ conducted nationally. Since the war however, the London Society of Compositors has been drawn into a national joint council for certain purposes; and in the war and post-war periods of full employment, when the limits to wage advances have been determined more by union restraint and government persuasion than by relative bargaining power, the Transport and General Workers' Union has been able to achieve a much greater uniformity of rates over the whole country.⁴ This, of course, has always been one of the standard aims of any national union. Therefore the particularly steep decline of the London busmen is probably best regarded chiefly as the loss of an exceptional London differential.

¹ *E.g.* the increases (autumn 1952), of 7s. to 7s. 6d. to engineers, shipbuilders, busmen, gas and electricity supply workers, and railwaymen.

² Wage rates in other cities would of course differ slightly, and relativities would therefore also be slightly different. Coventry rates for builders, printers, busmen, and railwaymen are about average for large cities; engineers' rates have in fact been rather above average, though far below the highest provincial level.

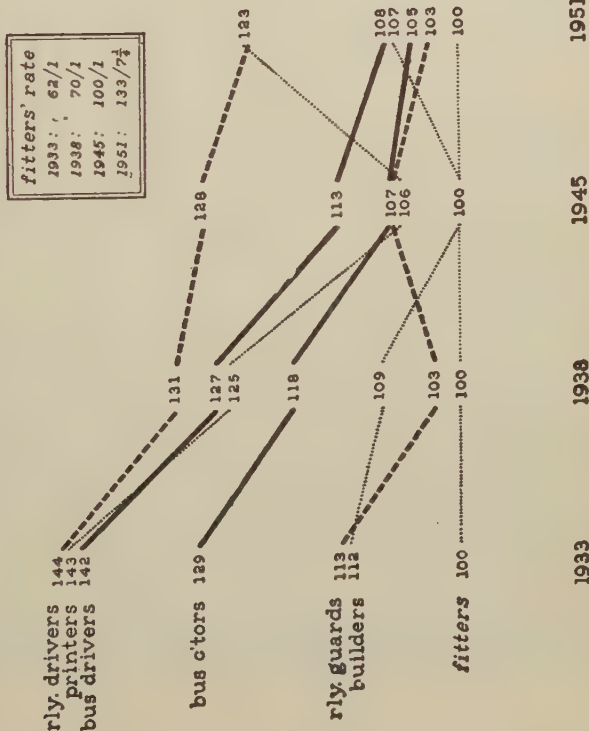
³ This does not exclude provision for local changes within the national framework, *e.g.* the upgrading of towns in the building industry, or the granting of special differential increases to L.T. stationmen in 1938.

⁴ This tendency can be seen even within L.T. rates: for instance, the Country busmen, whose rates have to bear some relation to those of other busmen in the districts around London, failed to maintain their rates relative to Central busmen between 1933 and 1938, but have since drawn very much closer (Table X).

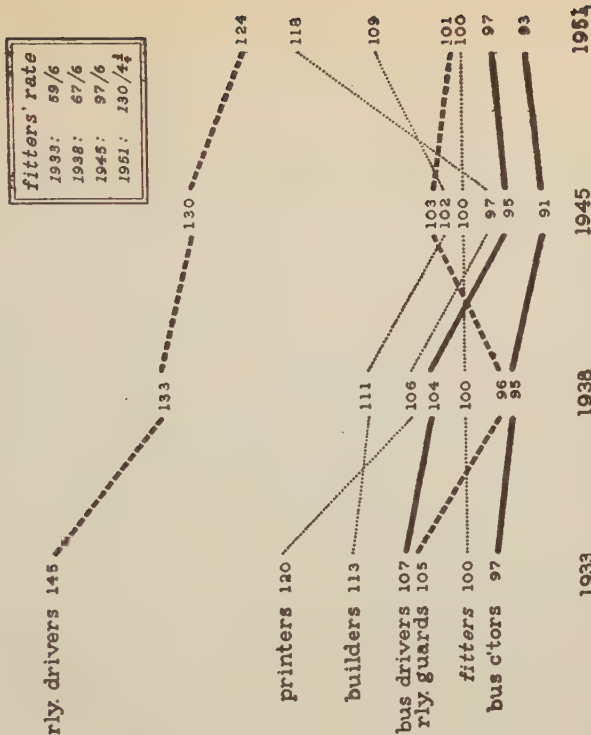
III. Relative levels of wage rates at certain dates

(Rates as percentages of those of engineering fitters)

IN CENTRAL LONDON



IN COVENTRY



Note.—The L.T. figures on which the graph is based are those given in Tables I and III—*i.e.* they include fixed allowances where these have by now been consolidated into the rates. Other figures are from Ministry of Labour publications. In these other cases we have unfortunately no details of any allowances that may have been since consolidated. In one case—hand compositors in printing—a 'merit rate' was being paid to virtually all workers in 1945, and has in fact since been consolidated. The low position of printers in 1945 is therefore misleading. Otherwise we have no evidence that causes us to doubt the broad relativities indicated in the graph.

But since 1933 Coventry busmen have also lost some ground, as have the railwaymen everywhere; and this suggests that similar influences to those affecting the excess of earnings also operate on the rate. For anything that increases the earnings excess will enhance the worker's bargaining power (or possibly, as in the case of an increase in overtime rates, be an indication that it has already been enhanced). Thus in 1933, at the bottom of the slump, the bargaining power of workers in manufacturing industry was very low, while that of workers in consumer service industries was less affected. The recovery from the slump naturally altered this relation, and most of the changes between 1933 and 1938 are probably therefore essentially a return to a previous relativity. Since 1938 however the overall labour shortage has so enlarged the bargaining power of all workers that other factors—in particular, the general policy of the unions concerned—have become of much greater importance. An examination of the differentials within London Transport (Table X) will illustrate this.

On the road services, the only union¹ for our grades is the T. and G.W.U. As a general labour union, the T. and G.W.U. is particularly interested in raising the wages of the lowest-paid grades. It therefore usually pursues a 'levelling-up' policy (a policy which may often involve, as well, some levelling down in real terms). One of the most obvious examples of this is the levelling up of tram rates to bus rates. Before the war, tram rates were everywhere either lower than or equal to bus rates in the same town: the difference was especially marked in London, mainly because tram drivers received the same rate as their conductors. From the nature of the jobs, there is little reason why, within the same firm, tram conductors should receive less than bus conductors: indeed, the bus conductor has a rather less arduous job, as both the tram and the trolleybus are larger vehicles. The difference in 1933 must therefore be attributed either to the greater prosperity of the buses before the amalgamation or to the existence of the national negotiating machinery for trams. Following the amalgamation, the rationale behind this differential—if indeed there had ever been one—disappeared; and therefore the T. and G.W.U. did not meet much opposition in pushing a policy of levelling up the rates of tram and trolleybus conductors.

For the drivers, the position was rather more complicated; for parity could not be achieved without either abolishing the skill differential on the buses or creating one on the trams and trolleybuses. Moreover there is no intrinsic reason why the jobs should command the same rate; bus driving is clearly the more skilled of the two—although possibly the less arduous. Nor, for that matter, was there any reason why tram and trolleybus drivers should be paid the same—other than the simplicity of continuing to pay the same workers the same rate. Indeed, if trolleybuses had replaced buses rather than trams, they would no doubt have taken over the bus rates. Therefore, when

¹ After the 'Coronation' bus strike of 1937, a National Passenger Workers' Union was established, but it never achieved sufficient success to obtain recognition. It disappeared after the war.

it was decided to replace the remaining trams by buses rather than by trolley-buses, it is not surprising that the automatic transfer of tram drivers to the higher-rated bus driving caused a reconsideration of the bus-trolley differential—which was finally abolished in 1952. It is perhaps worth noting that in other towns and cities in which there had been no equality of rates on the trams, equality between bus, trolley, and tram drivers was achieved earlier—an indication that wage differentials are often, in considerable measure, the result of historical accident enshrined in tradition.

Thus the T. and G.W.U. has achieved equality in Central London—apart from the vestigial skill differential, and even that they have suggested abolishing. On the railways, however, developments have been different. For in place of one general labour union there are two¹ competing railway unions—one the National Union of Railwaymen, an industrial union catering for all grades covered in this article, and the other the Associated Society of Locomotive Engineers and Firemen, a craft union. These unions share the organisation of the motormen. The N.U.R., like the T. and G.W.U. in a much wider field, tends to be especially concerned with raising the rates of the lower-paid; but its freedom to pursue a 'levelling-up' policy is qualified by its need to retain the loyalty of its better-paid members, many of whom have an alternative body to champion their interests. This has not prevented the N.U.R. from sometimes claiming increases confined to the lower-paid. However, for the major wage claims, the desirability of presenting a united front in negotiation has meant agreeing a form for each claim satisfactory to both unions.² In the post-war period, agreement has been achieved by

TABLE X
Relative Rates in Different L.T. Services

	<i>Average rates¹ as per cent of Central bus average rates</i>			
	<i>1933</i>	<i>1938</i>	<i>1945</i>	<i>1951</i>
Trams and trolleybuses	88	94	97	99 ²
Country buses	80	78	88	93
Railways	96	95	107	106

¹ Average maximum weekly wage rates of drivers and conductors (on the railways, of motormen and guards). All rates are as at December 31st.

² Increased to 100 on January 1st 1952.

presenting demands for percentage increases which would leave existing relativities undisturbed. During the war, when flat-rate advances were the rule throughout industry, rather higher claims may have had to be pursued in order to satisfy the craft union. Perhaps this may help to explain why the railwaymen received larger advances than the Central busmen (Table X); but

¹ The third railway union, the Transport Salaried Staffs Association, organises none of the grades considered in this article.

² Cf. the words of an N.U.R. delegate to the 1945 T.U.C.: 'There is not a trade union negotiator in this hall who would not agree with me when I say that one of the most difficult jobs we have to undertake is, not always to convince the employer, but to agree upon a common policy as far as our own people are concerned.' (*T.U.C. Report*, 1945, p. 235.)

more emphasis should probably be laid on the whittling away of the busmen's special London differential! For it does not seem unreasonable that motor-men should receive more than bus drivers: not only is their degree of responsibility possibly higher, but it must be remembered that they achieve their grading only after many years of work in grades far less well paid. Thus railway differentials—like those of steel melters, for example—are not only skill or responsibility differentials but also length-of-service differentials similar to those common in salaried occupations.

We have thought it appropriate in this concluding section to try to analyse some of the reasons for the changes that have occurred. Many of these reasons are, as we have seen, general, and may be expected to apply elsewhere in industry; others are more special to consumer service industries; while it must not be forgotten that in any industry—still more in any firm—there will be wholly peculiar factors at work. But it should prove possible in future studies to feel rather more confident about those generalisations that emerge in the process.

K. G. J. C. KNOWLES

H. J. D. COLLIER

APPENDIX

A. Qualifying Periods and Starting Rates (L.T. Railways)

	Qualifying period for maximum rate (years)	Maximum rate minus starting rate	Difference as per centage of maximum rate ¹
<i>Motormen</i>			
1920-37	5	18/- ³	17-20
1938-47	5	12/-	9½-13
1947-48	5	13/-	9½
1948-50	3	15/-	10½
1951 ³	3	17/-	11
1951 ⁴	3	18/-	11
<i>Guards</i>			
1920-37	5	15/- ³	18-23
1938-47	5	10/-	9-13½
1947-48	5	7/6	6½
1948-50	2	8/-	7
1951 ³	2	8/6	6½
1951 ⁴	2	9/6	7
<i>Stationmen⁵</i>			
1928-38	4	N.A.	N.A.
1939-47	2	2/-	2-4
1947-51	nil	—	—

¹ Where the maximum rate changed, minimum and maximum percentage figures are given.

² In 1932-5, when the earnings cuts were in operation, these differences were affected slightly. The largest cut reduced the differences to 17/1d. for motormen and 14/3d. for guards.

³ To August. ⁴ From September.

⁵ Earlier, when there were two grades of stationmen, there were no qualifying periods within the grades. Stationwomen since 1950 have had a six months' qualifying period and a starting rate 4/- lower; before 1950 they took three months longer to qualify and their starting rate was 6/- below their maximum rate.

B. Qualifying Periods and Starting Rates (L.T. Central Road Services), 1933-51

	Qualifying period for maximum rate (months)	Maximum rate minus starting rate	Difference as per- centage of maximum rate ¹
<i>Central buses :</i>			
drivers			
1933-37	6	6/-	6½-7
1937-50	18	7/6	6-8½
1951	12	8/-	5½-6
conductors ²			
1933-37	6	6/-	7-7½
1937-50	18	6/-	5-7
1951	12	6/-	4½
<i>Trams and trolleybuses :</i>			
drivers and conductors ²			
1933-50	24	9/-	7-12½
drivers			
1951	12	9/-	6½
conductors ²			
1951	12	7/-	5-5½

¹ Where the maximum rate changed, minimum and maximum percentage figures are given.

² Until 1950 the qualifying period for conductresses was 6 months longer. During their first 6 months they received 90 per cent of the conductors' starting rate.

C. *Standard Week, Overtime Rates, and Paid Holidays (L.T.)*

		Standard working week ¹ (hours)	Rate ^a of pay for : overtime ³ rest day ⁴ Sunday			Paid holidays ⁵ (days)
<i>Railways</i>						
1919-37	...	48	1½	1½	1½	6
1937-45	...	"	"	"	1½	12
1945-47	...	"	"	"	"	12+ ⁶
1947-51	...	44	"	1½	"	"
<i>Central buses⁷</i>						
1919-21 ⁸	...	48	1½ ⁹ or 1½ ¹⁰	1½	1	6
1921-34 ⁸	...	"	"	1½	1½	8 ¹¹
1934-47	...	"	"	"	"	12
1947-48	...	44	"	"	"	12+ ¹²
1948-51	...	"	"	"	1½	"

¹ Sunday duty is not counted in the standard week on the railways, but it is on the buses.

² '1' means pay at ordinary time rate, '1½' at time-and-a-quarter, etc.

³ For extra work, scheduled or unscheduled, on ordinary working days (*i.e.* not nights, week-ends, or rest days—for which different rates may apply). Before 1926 on the Central buses (and before 1936 on the trams and trolleybuses), overtime rates were payable in respect of scheduled hours in excess of the standard *weekly* number of hours, and in respect of all unscheduled overtime; from 1919 on the railways, and from the above dates on the other services, overtime rates were also payable on any work in excess of the standard *daily* number of hours.

⁴ For work on a weekday on which the worker has no scheduled duty (Saturday afternoon rate now higher on the road services).

⁵ After certain fairly short qualifying periods of service.

⁶ *I.e.* two weeks, plus two public holidays or days in lieu.

⁷ From 1933, these conditions apply also to trams and trolleybuses—except for the standard working week. This had alternated between 48 and 50 hours, but had been restricted to 49 on the average. In 1936 however it was reduced to the same level as for the buses.

⁸ Up to 1925, in some cases the overtime payments were reckoned on the basic rate only, in others on basic rate together with war bonus. (This latter is the rate shown in Table III.) From 1925, all overtime payments were calculated on the consolidated rate.

⁹ For overtime in the whole week up to 2 hours.

¹⁰ For overtime in the whole week above 2 hours.

¹¹ In 1929 on the Central buses (but not on the trams, etc.), two extra days holiday were granted to those who took their annual leave between October and March.

¹² *I.e.* two weeks, plus six public holidays or days in lieu.

UNEMPLOYMENT IN TEXTILES: A NOTE AND SOME CONCLUSIONS

In a recent article in this BULLETIN¹ Mr. Roland Smith and the present writer suggested that what set the cotton industry's experience of 1952 apart from that of the other trades most affected by last year's recession was rather the peculiar intensity of unemployment and partial unemployment in cotton than any unique decline in the demand for the industry's products. For the latter, indeed, we doubted whether the fall in final sales was notably more marked than for other main textile and clothing commodities. Nor did we think the particular violence of recession in cotton to be attributable to a speculative accumulation of finished goods in 1950-51—such as might, by causing a 'glut' at distributive levels, have led to disproportionate unemployment in the following year. We found no evidence of such a stockpiling among domestic retailers and wholesalers, and little to suggest that speculation by overseas traders had a more pronounced effect on cotton cloth exports than, say, on those of woollen manufactures. But we drew attention to the fact that the loss of work in the various sections of the cotton industry was the greater, the further they were removed from the final product. We concluded that the peculiar force of recession in cotton was as much an effect of the trade's structure as of its misfortunes in the markets. The point was somewhat briefly made in the original essay, and, since the writer has received some comment on it, may perhaps be expanded.

This tendency for unemployment and under employment to increase with the proximity of the section concerned to the raw material was particularly marked by a much greater loss of work among the spinners of cotton and rayon than among the weavers. The Cotton Board's official circular, in a contemporary comment, suggested three causes for it: the heavier decline in direct exports of yarn than in those of cloth: the fall in certain non-weaving uses of yarn, such as hosiery: and '... the tendency for the effects of the recession to become progressively worse at each stage of the productive process the farther it is away from the final consumer.'² The effect of

¹ 'The Slump in the Cotton Industry, 1952,' BULLETIN, April, 1953. The following amendments to this article should be noted:

The paper presented by Dr. R. Robson to the meeting of the Royal and Manchester Statistical Societies in September 1952, and referred to on p. 106 (Note 3) and on other pages of the above article, has since been published under the title 'The Location and Development of the Cotton Industry' in the *Journal of Industrial Economics* for April 1953.

In note 4 on page 106 of the above article the U.K. export of grey cloth in 1951 is stated as 225 m. sq. yds. This figure is apparently that for cotton cloth dyed-in-the-piece (other than pile fabrics), the actual figure for grey cloth (other than tyre fabrics) being 51 m. sq. yds. This transposition—which fortunately affects neither our calculations nor our conclusions—arose from an error in the 'International Cotton Bulletin' summary tables (XX, 77, Cotton Trade Statistics). The 'oddy' referred to in this note thus becomes one of print rather than fact.

In note 1 of p. 109 of the above article, it is stated that the price of 'rayon fibre' increased by 46 per cent between the outbreak of the Korean War and Spring 1951. This figure should read as 'rayon fibres (including filament yarns) 30 per cent.' The other price increases quoted in that note, and that for rayon given in note 3 on p. 121, are correct.

² Cotton Board Quarterly Statistical Review, September, 1952.

the fall in direct yarn exports was small—equivalent only to some 3 or 4 per cent of unemployment—in relation to the total loss of work in cotton-spinning (detailed later in Table A). The fall in hosiery's demand for yarns was partly offset by the relative stability of certain other 'industrial' uses: and insofar as these effects on balance aggravated the recession in cotton-spinning, they involved a reaction from users of yarn other than cotton-weavers but also nearer the end-point of the production chain than the spinners. It is the third factor, therefore, that remains the central clue to the situation.

Although it reached its greatest force within the cotton industry, this magnification of recession with the distance of processes from the final market was by no means confined to that trade. This is shown by Graph I, which records the fall in employers' payrolls in four textile trades, approximately representing successive stages of production. What is involved here is a variant of the 'acceleration' principle familiar to economists¹—that changes in the level of final demand tend to produce disproportionate changes in capital investment.

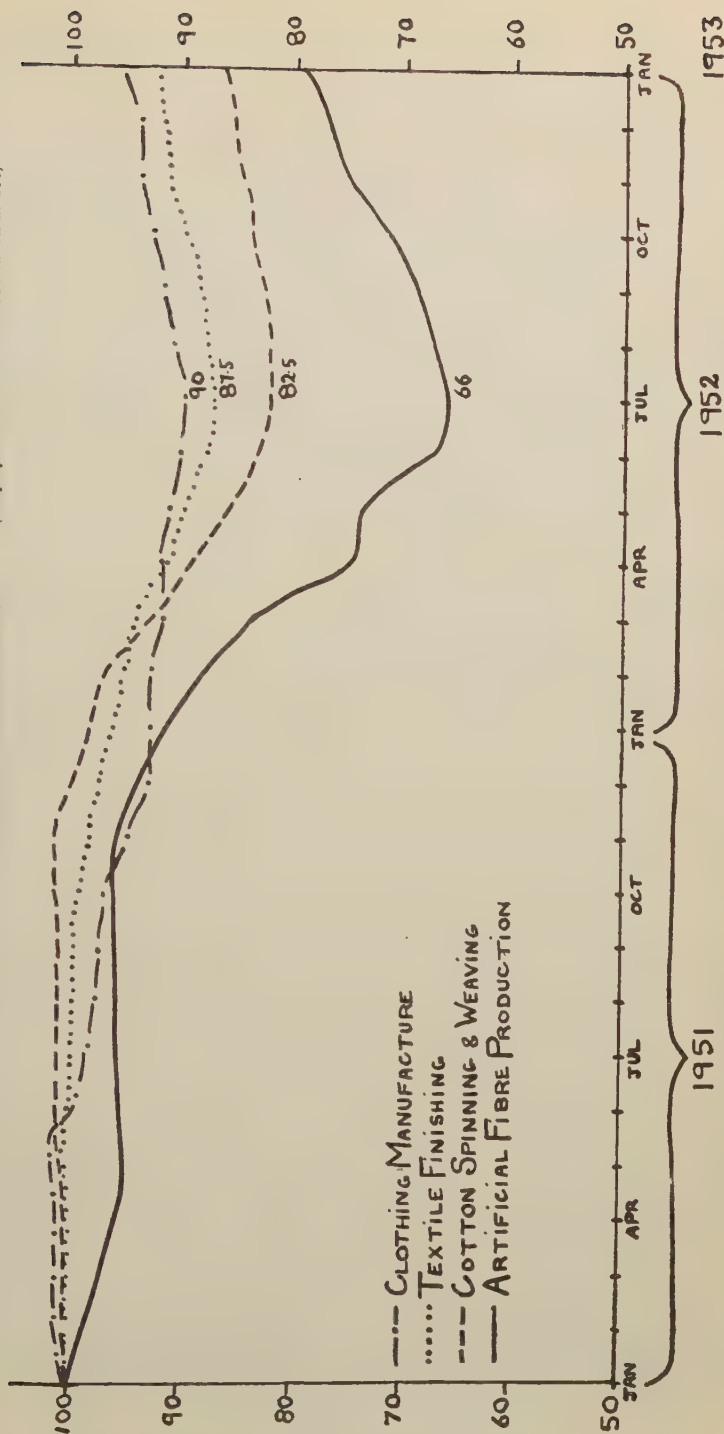
The simplest application of the 'acceleration' principle to the present case would run as follows: Any fall in the demand for a finished product will be magnified in the stages of manufacture near the raw material, because when the flow is cut at one stage of production, the reduction in output from the preceding process will be not merely proportionate but also sufficient to run down the intermediate working stock of semi-finished materials to the new level of turnover. Consider, for instance, a finishing process turning out 1,000 items a week, and requiring a working stock of 500 semi-finished items to maintain that output. A fall in demand of 20 per cent would involve a reduction of finished output to 800, and also of the working stock requirement to 400. But this means that the *preceding* process (which formerly produced 1,000 semi-finished items a week to meet the needs of the finishers) is cut, not merely by 200 per week, but also by the further amount arising from the reduction of 100 in the finishers' working stocks. The effect of this further reduction is, of course, short-term. And its intensity will depend on the period over which the reduction in working stock is spread. If the latter is reduced in four weeks, then during that time weekly output of semi-finished goods will, in the example, only be 775, as compared with 800 of finished items.

The 'accelerator' is commonly used in economists' discussion to describe the effect of demand changes on fixed investment. It will be noted that the type of 'acceleration' here instanced, however, is both more sensitive and more immediate in its results.

¹ There is a recent discussion, 'The Acceleration Principle Reconsidered' by R. S. Eckhaus, in the *Quarterly Journal of Economics* (Harvard) for May, 1953. I am, indeed, obliged to Prof. W. A. Lewis for widening my understanding of this principle, as also to Prof. Ely Devans for first drawing my attention to the importance of intermediate stocks in the cotton trade. An association of these two things gave the starting hypothesis for the present analysis: these gentlemen have, of course, no responsibility for its conclusion.

WORKERS ON PAYROLL IN EACH INDUSTRY

GRAPH I 'Acceleration' in Unemployment at Four Stages of Textile Manufacture, 1951-2. (Employment at End Dec. 1950 taken as 100).



Calculated from Ministry of Labour's Monthly Estimates of Employment by Industry (with revisions compensated)

It would be as well here to consider the indices available to measure the relative impact of recession at the various points of production. The employers' payroll returns used in Graph I suffice for illustrative purposes, but are not a precise index to employment because they do not indicate the amount of short-time and underemployment among workers retained 'on the books'. And in certain trades—particularly in cotton—such partial unemployment was more important than actual dismissal of workers. The 'counts' of registered unemployment include some proportion of operatives on short-time besides those wholly stopped, but are useless for comparison of activity between trades, if only because the main textile industries are strongly localised and the chances of alternative jobs vary so much between their respective districts. Production returns also illustrate the 'acceleration', but again with a doubtful precision. Since stocks provide the mechanism of the 'accelerator' here, the exact point at which the collected production records are taken becomes of some importance: this point may be raw material consumption, actual process output, deliveries from the factory, or manufacturers' sales: the various readings may, of course, give very different results. Some textile sections publish no production statistics anyway. Few quantity statistics of stocks are collected, and some of the returns that are made—as in cotton—are not published for trade reasons. Plant utilisation records are among the most illuminating, but these are not available for all industries, and in the textile trades are affected by substitution of alternative fibres, which may cut out processes in the using industry. In the latter part of this note a combination of plant utilisation returns with payroll statistics will suffice to illustrate its thesis. Meanwhile, however—and since it is the employment effects of the 'accelerator' that are here of most concern—a more exact calculation of the loss of work in the different textile industries can be made for at least one date in the recession.

This is done by taking the number of workers struck off the payrolls in each industry (as calculated from the Ministry of Labour's series¹ 'Numbers Employed in Great Britain: Industrial Analysis') in association with the average loss of working hours from short-time experienced by those remaining on the books. This loss can be estimated from the Ministry of Labour's quarterly sample census, 'Short-time and Overtime in Manufacturing Industries' and can then be converted to an equivalent in terms of 'full' unemployment. Thus, if the calculation from the quarterly census showed an average loss of 15 hours per week from short-time in a trade where the standard working week was 45 hours, that is treated as the same as if one-third of the workers on the industry's books were totally unemployed. The first of the Ministry's tables is an estimate which is varied month-by-month largely upon a return which also serves (quarterly) as the source of the second table. Without going

¹ Both these tables are, of course, to be found in the section 'Employment, Unemployment, etc.' of the Ministry of Labour Gazette.

There are separate statistics of employment for cotton and woollen operatives published respectively by the Cotton Board and the Wool Industry Statistics Bureau. Neither of these independent series, however, includes a comparable short-time return.

into detail, it can be said that the two series seem contiguous and it appears legitimate to combine them.

In combination, the decline in the payrolls and the 'full-time equivalent' of short-time working thus give a figure which is equal either to the number of workers who would have been dismissed if no short-time system of 'spreading the work' had operated, or alternately to the average proportion of normal working hours which would have been lost had *no* operatives been dismissed but all retained on a short-time basis. This index is not wholly satisfying in the case of cotton- and rayon-weaving because it does not take account of the traditional Lancashire method of meeting depression by keeping weavers on full-time but with reduced complements of looms and at proportionately reduced wages. But this system was not widely used in 1952, though other forms of under employment may have been significant, both in cotton and other industries. No *general* method of estimating their effect, however, presents itself to the writer. The calculation proposed seems to come as near as the available statistics permit to a fair comparison of the loss of work in the different major textile trades.

Since the short-time census is only made quarterly, was not published in its present detail before 1952, and becomes a doubtful register of activity during the holiday months, the calculation does not give a *series* which can be used here. It can, however, be made for one month pretty close to the bottom of the textile recession—May 1952, in which *registered* unemployment was also generally highest. At this date it produces the following result:

TABLE A

'Effective Loss of Work' in Textile Recession as at end-May 1952 and as a percentage of 1951 peak employment.

Clothing Manufacture	12.2
Textile Finishing	16.8
Wool and Worsted (preparation and weaving)	20.0
Rayon, Nylon, etc., Weaving (including silk industry)	36.1
Cotton Weaving	26.4
Cotton Spinning and Doubling	48.5
(Cotton Combined	38.6)
Rayon, Nylon, etc., Production (fibres and filaments)	34.5

In terms of employment May was probably not quite the worst point: the numbers on the payrolls actually fell to their lowest in June or July 1952 in most sections. But no other short-time return is available for the acute phase of the recession, and an attempt to estimate short-time on some other basis involves disentangling it from the July holidays. Roughly, it seems likely that 'effective loss of work' increased a further 2 or 3 per cent in each group between May and July, leaving its relative impact much the same. There is one important exception to this, however; in the production of rayon fibres, short-time was most extensive (if the number of operatives registered as 'temporarily unemployed' is any guide) in April, when the 'effective loss of work' in that group may well have been as much as 50 to 60 per cent. But in the latter phase of the recession, this section benefitted from the wide substitution of artificial fibres for the dearer natural materials.

Each of the industries distinguished in Table A. was, of course, affected by specific circumstances—dependence on exports, and so on. Their grouping is determined by the Ministry of Labour's adoption of the Standard Industrial Classification, and this does not provide demarcations completely satisfactory for present purposes. The 'Rayon, Nylon, etc. Weaving' group in particular includes on the one hand mills quite arbitrarily distinguished from those in 'Cotton Weaving' and, on the other, the whole of the silk industry, including its preparatory stages. This rather odd amalgamation makes the category of little value for comparison—or indeed, any other use that the writer can see.¹

The grouping of Table A. nevertheless approximates sufficiently to stages of production to show how marked was the progressive decline in employment as recession spread back from the market for finished goods. The 'Rayon, Nylon, etc. Production' group supplies man-made alternatives to the natural fibres that are the main materials of the cotton and woollen industries. Its largest consumer is probably the cotton-spinning industry, though some artificial and synthetic filaments are also used directly by cotton weavers. The larger part of employment in the 'Rayon, Nylon etc. Weaving' group is probably given by weaving firms using cotton and rayon yarns. Some of the 'Textile Finishing' is done on yarns but the overwhelming bulk of this group's trade is in the processing of woven cotton, rayon, woollen or mixture cloths. Very few cloths used by the 'Clothing' group—where some three-quarters of the work is on woven textiles, of which it is also the major user—are not subjected first to some finishing process.

In all, the industries grouped in Table A comprised about 80 per cent of all textile and clothing employment in Great Britain.² It will be seen that the loss of work in 1952 was roughly quadrupled between the trade nearest the consumer and those nearest the raw material.

But, an 'acceleration' of the dimensions registered by Table A. seems much too great to be explained by the simple model with which the principle was first illustrated here—and in which the 'accelerator' was operated by what were virtually technical circumstances. That simple pattern appears especially inadequate to account for the redoubled loss of work in cotton-spinning as compared with cotton-weaving, which Table A depicts. This Table, however, also illustrates another difference, which will give a clue to the problem's solution. The cotton-spinning and -weaving trades together may be roughly taken to represent 'the cotton industry'. For its particular materials, this industry again represents productive stages analogous to those grouped under 'Wool and Worsted'. Yet the combined loss of work in cotton was nearly twice as great as in the latter group.

It has been said that there is no evidence that the fall in demand for the cotton industry's products was notably greater than for those of the woollen

¹ The demarcation presumably dates from the day when rayon was called 'artificial silk' and the silk trade was mainly associated with hosiery.

² According to 'The Employed Population, 1950-51', Ministry of Labour Gazette, February 1952.

group. The development of the 1951-52 slump was, however, concentrated into a shorter period of time in cotton. It does not seem possible to allow for the different 'spread' of the recession's impact upon the various textile industries statistically. There are obstacles both practical and statistical to the attempt, and objections in principle to making it. But it does appear (though the Ministry's employment series for several textile trades were broken by changes in classification in 1951) that employment in all the *weaving* sections—wool and worsted, cotton and rayon—began to fall at about the same time: it was only as between the *spinning* sections that the movement of employment differed widely. (These movements are shown in Graphs II-IV). Now in any textile industry the weaving processes, being nearer the consumer, register more clearly the *direct* impact (as opposed to the 'accelerator' effects) of demand changes. Insofar, then, as a difference in timing may account for the discrepancy in experience between the woollen and cotton groups, it still requires an explanation internal to the industries concerned.

Here, it is worth examining the experience of the wool trades in more detail. The Ministry of Labour's group 'Wool and Worsted' (Table A.) actually comprises two parallel industries which, though technically similar and sharing a common major material and location, have different commercial organisations. The woollen industry proper is largely a 'vertical' business, preparation, spinning and weaving of wool being all conducted by the same firms. The worsted industry, however, is 'horizontally' organised, these main processes being there carried on separately, by firms which buy materials and sell semi-finished products to the next stage in line. The detailed employment statistics of the Wool Bureau¹ permit the following calculation:

TABLE B

Decline in payrolls to end-June, 1952, as a percentage of employment in January, 1951

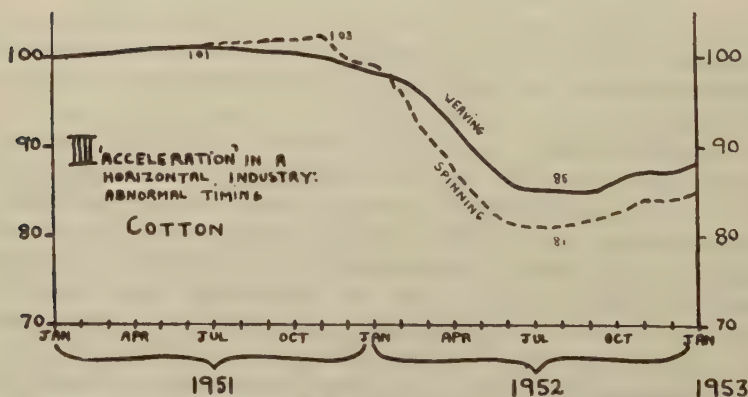
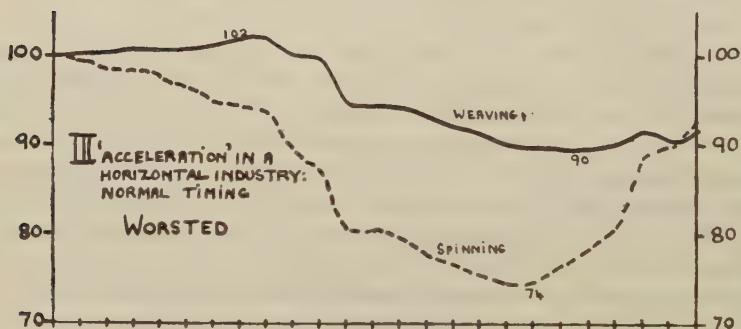
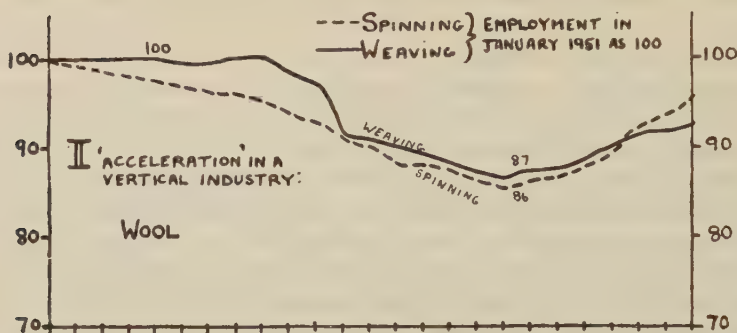
					<i>Wool</i>	<i>Worsted</i>
Weaving	...	...	...	...	13	10
Spinning	...	...	...	...	14	26

The 'acceleration' in unemployment from weaving to spinning thus appeared very much smaller in the vertical woollen industry than in the horizontal worsted trades.

The relatively small 'acceleration' shown by the 'Wool' payroll records may be partly accounted by a labour policy natural to integrated concerns—that of keeping a balance of workers at the different points of production. The number of workers struck off the books, however, is only a partial indication of the relative decline in activity of the different trades here concerned, because it does not show the incidence of short-time among the operatives remaining. No breakdown of the Ministry of Labour's quarterly short-time return for 'Wool and Worsted' is published; but the returns of machinery utilisation for 1951-53 (see Table C below), while they show a greater 'acceleration' in the 'Wool' section than its employment records, also confirm that the 'acceleration' in 'Wool' was notably less marked than in 'Worsted'.

¹ Wool Industry Bureau of Statistics, via 'Wool Intelligence'.

GRAPHS II, III, & IV. 'Acceleration' and Timing of Employment Changes as between Processes in Three Textile Industries, 1951-1953.



Derived from numbers on payrolls estimated by Ministry of Labour for cotton and by Wool Industry Bureau of Statistics for wool and worsted.

TABLE C
Machine Activity, as a Percentage of Activity in January, 1951

Last pay week in				Worsted			Wool	
				Broad Looms	Spindles	Combs.	Looms	Carding Sets
1951	January	...	...	100.0	100.0	100.0	100.0	100.0
	April	...	...	105.7	102.5	97.2	105.5	100.4
	July	...	...	105.1	97.6	85.3	94.9	87.9
	October	...	...	104.2	88.6	65.8	100.3	85.9
1952	January	...	...	93.6	74.9	64.6	95.3	82.8
	April	...	...	86.5	69.0	66.4	85.1	75.5
	July	...	...	75.0	71.2	75.4	78.9	73.3
	October	...	...	88.7	90.7	87.7	99.4	73.1
1952	January	...	...	97.4	98.4	103.6	105.8	96.6

(Wool carding and worsted combing are both preparatory processes to spinning).

¹ Calculated, again, from Wool Industry Bureau of Statistics' series, reproduced in 'Wool Intelligence'.

This suggests a further explanation of the difference in experience as between the wool and worsted trades. In a horizontal industry, stocks of intermediate products are determined as much by trading policies as by production requirements. They are likely to be larger, and also to fluctuate in accordance with factors more complex, than technical considerations alone would dictate. It seems very probable, then, that the greater fall in spinning activity in the worsted trade reflected the running-down of yarn stocks accumulated—by either spinning or weaving firms—in the preceding boom.

The cotton industry's organisation is also predominantly horizontal. A few manufacturing concerns do their own bleaching and one or two operate other finishing processes, but most of the finishing is done by separate combines, which work on commission from the 'converters'. About three-fifths of cotton-weaving capacity is, however, also controlled by these merchants, so that in a commercial sense the degree of integration in the later stages of cotton cloth production is quite high. Only about a fifth of cotton-spinning capacity, on the other hand, is owned by firms that also weave.¹ The 'Textile Finishing' statistic of Table A embraces the whole finishing trade, but some two-thirds of its work is for the cotton industry. Table A suggests that the 'acceleration' from finishing to cotton-weaving was much less pronounced than that from weaving to cotton-spinning—and between these last two sections the degree of integration is least.

A further comparison of the major textile industries' experience of 1951-52 raises one other point of significance. In the normal pattern of an 'acceleration', activity falls first in the earlier stages of production, as outstanding orders are still being completed at the finishing end. Once intermediate stocks are run down, employment in the early stages will correspond to that

¹ The proportions of 'integration' are roughly those of Dr. R. Robson's paper to the 1951 Cotton Board Conference 'Vertical Integration' that seem the best to indicate the extent to which output at one stage is organisationally tied to orders at the succeeding one.

nearer the final market. If demand revives, however, the effect will be first marked at the raw material end, and activity in the final processes can only follow when working stocks are restored. This pattern is demonstrated by both the wool and worsted payroll records depicted in Graphs II and III, and—almost perfectly—by the ‘Worsted’ machinery utilisation statistics of Table C. The utilisation returns for ‘Wool’ show the same pattern in the development of the slump; the relatively low wool-carding activity in the recovery probably reflects the use of alternative fibres;¹ the ‘Wool’ employment series (see Graph II) shows that payrolls rose faster in wool-spinning than in wool-weaving.

In the cotton industry, however, this normal order of the ‘acceleration’ movement was quite reversed. In cotton, employment in spinning went on rising until November 1951—several months after that in both weaving and finishing had begun to fall. And in the recovery period, the activity of the spinning section again continued—although here no substitution which could materially have affected the Ministry of Labour’s employment series was possible rather to lag behind rising employment at the stages nearer the end-product. This reversed order of timing is shown by the payroll estimates sketched in Graph III, the evidence of which is confirmed by the available machinery utilization statistics for cotton. The latter give—after allowance (necessary because the series are published as quarterly averages) for summer holidays—the following result:²

TABLE D
Quarterly Totals of Machine-Hours in Cotton-Spinning and-Weaving as a Percentage of Machine-Hours in first quarter of 1951

				Spindle Hours	Loom Hours
1951	1st qr.	...	...	100	100
	2nd qr.	...	...	104	106
	3rd qr.	...	...	105	102
	4th qr.	...	...	106	103
1952	1st qr.	...	...	91	96
	2nd qr.	...	...	52	71
	3rd qr.	...	...	63	67
	4th qr.	...	...	80	83

Cotton’s inversion of the normal timing of an ‘acceleration’ is again demonstrated.

It is possible that price maintenance by the cotton yarn-spinners contributed to the abnormal course of events in their trade. It has been put to the writer that an artificial price level for yarn produced an over-confidence among cotton-spinners which led them to maintain production after weavers’

¹ Mr. R. Brothwell states, in ‘The 1951 Depression in the British Wool Textile Industry’, *Yorkshire Bulletin of Economic and Social Research*, September, 1952, that wool spinners substituted 10 per cent of wool tops by cheaper fibres. If, as I am told is possible, these fibres did not require carding in the woollen mills, that would account for the lag in the recovery of the carding utilisation series.

² Calculated from the Cotton Board’s ‘Quarterly Statistical Review.’ Note that ratios of machine activity in the second quarter of 1952 are approximate counterparts to those for ‘loss of work’ in cotton-spinning and -weaving set out in Table A, and thus check the latter calculation.

demands had fallen. It may well be that the price-fixing of cotton yarn made weavers reluctant, after recovery had set in, even to replenish their yarn stocks to a customary level. But there is clearly a limit to the ability both of spinners to spin without at least an *anticipated* market, and of weavers to weave without re-ordering yarn. Moreover, the cotton-weavers were able to circumvent the yarn spinners' regulation to some extent by substituting spun rayon, another product of the spinning section, for cotton yarn.¹ Price maintenance of yarn, however, does make it unlikely that orders from weaving firms were mainly responsible for cotton-spinning's delayed conformity to the general downward trend.

The major explanation of this abnormal pattern of recession in the cotton industry seems to be that firms—it is for the above reasons probable that spinners were most concerned here—continued to add to their own stocks of yarn after its current use had declined. One reason why all sections might have preferred to work to stock rather than cut output when orders were falling was a natural fear of losing the labour hardly-won since the war. But this would not explain the continued *increase* of employment in spinning. The stock-piling of yarn seems rather attributable to a general miscalculation of the market situation.

The signals of recession were apparently not strong enough to convince mill managements in cotton that the boom was over. In effect, they thought the accumulation of yarn good business. The consequence of this would have been not merely to delay the spinners' response to the trend of final demand, but actually to induce a certain over-employment in cotton-spinning while the slump was in germination. A proportionately exaggerated fall in employment would result when the fact of recession became unmistakeable.

Something of the same sort may also have operated as between the cotton-weaving and textile-finishing trades, though the published statistical evidence is too scattered to be more than suggestive. Graph I points in this direction, and such other series as are published for work and activity in the finishing of cotton cloth appear to run parallel to those for its weaving rather than to follow after. Moreover, it is notable (see Table A again) that the 'acceleration' from textile-finishing to cotton-weaving was greater than that from textile-finishing to all the woollen and worsted processes combined. The 'converters' of cotton and rayon cloth—as the intermediaries between the cotton-weavers and the finishers—would probably have been the principal instrument of the 'acceleration' in this case. The effect seems, however, less than that between cotton-weaving and -spinning, and the distortion of normal timing less marked.²

This survey of the major textile industries' response to the 1951-52 recession thus permits certain broad conclusions. Within a vertical industrial

¹ The substitution of cotton yarn by filament rayon for tyre fabrics was already advanced in the preceding boom period.

² I understand that several aspects of the 1952 cotton recession on which there has hitherto been inadequate data are to be reviewed—not necessarily to the same conclusion as that of Mr. Roland Smith and the present writer—by Mr. B. Vitkovitch in a forthcoming issue of 'The Manchester School.'

structure, an 'acceleration' (of the type here discussed) arising from demand changes is likely to be confined to the effect transmitted by intermediate working stocks, which will be generally limited to the minimum technically expedient. In this case the 'accelerator's' effect on employment is also likely—at least, when labour is not generally abundant—to be further confined by the natural desire of vertical firms to maintain a balanced labour force. This modest 'acceleration' is illustrated by the wool industry, in which the pattern corresponds (see Graph II) most closely to this article's first simple model.

Within a horizontal industry, however, the 'acceleration' will probably be greater because in this case intermediate stocks may fluctuate more largely in accordance with the trading expectations of its separate sections; while the effect of this on employment is less likely to be cushioned by such labour considerations as those which influence integrated concerns. This pattern is demonstrated (see Graph III) by the worsted trades. Moreover, and as the cotton industry's experience (set out in Graph IV) shows, the 'acceleration' may, in the case of a horizontal industry, be further amplified and distorted by speculation in semi-finished materials.

These propositions may be generalised by the statement that the 'acceleration' in unemployment which recession induces in an industry is likely to increase in some relation to the number of commercial frontiers which its productive processes must traverse, and may be greatly amplified by speculative dealings at those frontiers. Now, taken together the separate trades depicted in Table A represent an almost complete industrial structure, from the first workers of raw material to the last stage before distribution to the consumer. To the extent that much of 1952's unemployment in textiles was rather a product of the horizontal subdivision of those trades than a direct consequence of the fall in consumers' demand, it was in a strict sense unnecessary. It would also follow, of course, that the previous *increase* in employment at the earlier stages of production was to a degree excessive. An industry's commercial structure may not affect its *average* level of activity; but a horizontal organisation—whatever the special merit of that form in other contexts—seems to involve a greater *fluctuation* in employment.

H. A. TURNER

University of Manchester.

JOURNAL of the AMERICAN STATISTICAL ASSOCIATION

SEPTEMBER 1953, VOLUME 48, NUMBER 263

ARTICLES

- Statistics in Chemical Experimentation *G. Daniel*
- Procedures for the Rejection of Suspected Data *Edgar P. King*
- The Distribution of the Product of Ranges in Samples from a
Rectangular Population *Paul R. Rider*
- A Statistically Precise and Relatively Simple Method of Estim-
ating the Bio-assay with Quantal Response, Based on the
Logistic Function *Joseph Berkson*
- Confidence and Tolerance Intervals for the Normal Distribution
... .. *Frank Proschan*
- Improving Marriage and Divorce Statistics *Hugh Carter*
- Sampling the Federal Old-Age and Survivors Insurance
Records *Benjamin J. Mandel*
- Calculating Longevity from Sample Composition *Leo A. Goodman*
- On the Use of Ranges, Cross Ranges, and Extremes in Com-
paring Small Samples *Hannes Hyrenius*
- Critical Values of the Log-Normal Distribution *Jack Moshman*
- How Marketing Problems of the Apple Industry were Attacked
and the Research Results Applied
... .. *Max E. Brunk and Walter T. Federer*
- A Note on the Analysis of Randomized Experiments
... .. *O. Kempthorne and W. D. Barclay*
- Life Testing *Benjamin Epstein and Milton Sobel*
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